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EDITORIAL



The environment perceptively remains the most pressing global issue both for the global community as well as global diplomacy. The sub theorem connotes from this that it has no inherent transnational character in symphony with the survival aspect of humanity. Sustainability, which means the capability of the system to survive with generational concerns, accompanies the theme of environmental aspects confronting the global community. Not surprisingly, it remains a focal point in global debates as well as in the U.N. agenda. In consonance with the Brundtland Report, the U.N. agenda as reflected in CoP – 29 and at other global environmental conclaves substantiates the same. Contemporary deliberations on environmental challenges tend to focus on evolving notions and practices desirable for establishing a relative equilibrium between ecology and developmental concerns. In a larger perspective, both share a symbiotic relationship as one cannot exist without the other. In this special issue of Dehradun Law Review, an intellectual procreation of Law College Dehradun, Uttaranchal University, is an honest effort towards the well-cherished environmental sustainability goals of the global community as analysed, deciphered, and institutionalized under the dynamic framework of the United Nations. We have sincerely endeavoured to offer an effective analytical framework concerning environmental issues to develop practical perceptions regarding sustainable development. Our effort has been to provide new paradigmatic shifts and currents undergoing in contemporary environmental deliberations.

In this current issue, thought-provoking articles such as Smart cities and urban development: evolving sustainable urban governance in the age of climate change , Health rights of transgender community and sustainable development in India, forced eviction of ‘Gadia Lohar’ community in Prem Nagar, Kotla, Delhi: contextualizing the human rights via voices of dispossessed, Impact assessment of climate agreements on human rights, sustainable eco-friendly alternatives for highly pollutant ship-breaking, The protection of traditional

Examining the Progress and Challenges in India, “Trans” Equality of Opportunity: Tapping the Affirming Fabric of The Constitution, Alternative Dispute Resolution - An Ancient Indian Practice as An Alternate to Realize Sustainable Development Goal- 16, The Role of A.I and Cyber Forensics in Achieving SDG 5 and 16 Dealing in Specific Reference to Cyber Offences Against Women, ‘The Ones Who Are Left Behind’: Tracing Space for Non-Binary Individuals in Sustainable Development Goals 2030 Agenda, Advancing Sustainable Development Through Legal Innovations in Digital Identity and Social Media Privacy, Investigating The Contributions of Geographical Indications (GI) Towards Sustainable Development of a Region: Overview and Insights from Muga Silk GI of Assam and Examining Legal Approaches and Challenges in Addressing Ecocide in India: A Critical Analysis offering invaluable insights dealing with the various differentials of ecology and sustainability.

Evolving new paradigms and theorizing are, no doubt, commendable intellectual efforts but always require constant scrutiny & critical inputs which remain the exclusive domain of readers. Hence, we sincerely solicit constructive criticism with humility and humble submission from our readers as well as the intellectual fraternity. At the same time we specially thank the contributors of articles for their herculean efforts to make this special issue dealing with issues beginning with eco-anarchism to eco-feminism and eco-centrism, presentable in the hands of our respected readers.

God Speed!

Prof. Rajesh Bahuguna
Editor-in-Chief

CONTENTS



01

SMART CITIES
AND URBAN
DEVELOPMENT:
EVOLVING
SUSTAINABLE
URBAN
GOVERNANCE
IN THE AGE OF
CLIMATE
CHANGE

*By
Dr. Prem Chand*

19

HEALTH RIGHTS
OF
TRANSGENDER
COMMUNITY
AND
SUSTAINABLE
DEVELOPMENT
IN INDIA

*By
Dr. Vijoy Vivekananda
Panicker*

29

FORCED
EVICTION OF
'GADIA LOHAR'
COMMUNITY IN
PREM NAGAR,
KOTLA, DELHI:
CONTEXTUALIZI
NG THE HUMAN
RIGHTS VIA
VOICES OF
DISPOSSESSED

*By
Ms. Swati Agarwal*

42

IMPACT
ASSESSMENT OF
CLIMATE
AGREEMENTS
ON HUMAN
RIGHTS

*By
Dr. Prabjeet Sandhu
Dr. Manish Bhardwaj*

59

SUSTAINABLE
ECO-FRIENDLY
ALTERNATIVES
FOR HIGHLY
POLLUTANT
SHIP-BREAKING

*By
Dr. M. Ravindranath
Dr. K. V Ravi Kumar*

80

THE
PROTECTION OF
TRADITIONAL
KNOWLEDGE IN
INDIA: A WAY
AHEAD
TO MAINTAIN
SUSTAINABILITY

*By
Ms. Shubhangi Gupta*

97

KNOWLEDGE
ACTION GAP
BETWEEN
MOUNTAIN
ECOSYSTEM &
CLIMATE CHANGE
POLICIES FOR
LEGAL
RAMIFICATION OF
ENVIRONMENTAL
LAWS IN
UTTARAKHAND

By
Aradhana Chaurasia
Dr. S. K. Chaturvedi

112

WOMEN IN
INDIAN
ENTREPRENEURS
HIP AND
INNOVATION;
ISSUES &
CHALLENGES

By
Dr. Nidhi Tyagi
Ms. Hema Pancholi
Mr. Amit Kumar

125

MANAGING THE
BURDEN AND
IMPLICATIONS
OF MENTAL
HEALTH
ISSUES WITH
INTEGRATION
OF AYURVEDA

By
Dr. Paridhi Painuly
Mr. Ashok Dobhal
Dr. Manya Gupta

141

INDIAN
CONSTITUTION
AND
ENVIRONMENT:
CASE STUDY OF
UTTARAKHAND'S
ENVIRONMENTAL
CHALLENGES

By
Ms. Aadya Dang
Ms. Payal Bhatia
Dr. Aman Rab

161

ENVIRONMENTAL
CONSERVATION
PRACTICES OF
MAJOR TRIBES IN
MALWA:
BRIDGING
TRADITION WITH
SUSTAINABLE
DEVELOPMENT
POLICIES

By
Harish Sharma
Aditi Sharma

183

ENVIRONMENTAL
JURISPRUDENCE
AND INDIAN
JUDICIARY:
LANDMARK
RULINGS,
DOCTRINES, AND
JUDICIAL
ACTIVISM FOR
SUSTAINABLE
DEVELOPMENT

By
Ravi Kant
Raneeta Pal

206

TOWARDS
SUSTAINABLE
SOLUTIONS:
LEGAL
CHALLENGES
AND RESPONSES
TO
MICROPLASTIC
POLLUTION

By
Prof. Sanjeev Kumar
Chadha
Amit Kumar Singh

223

JUDICIAL-
LEGISLATIVE
DYNAMICS ON
MARITAL RAPE
IN INDIA

By
Dr. Rashmi Singh Rana
Sneha Singh

237

THE
INTERSECTION OF
ENVIRONMENTAL
LAW AND HUMAN
PSYCHOLOGY:
BEHAVIOURAL
FACTORS
INFLUENCING
ENVIRONMENTAL
POLICY
COMPLIANCE

By
Dr. Ashish Kumar Shukla
Dr. Vismita Paliwal

251

RE-LOOKING AT
THE ECONOMIC
OFFENCES
THROUGH THE
LENS OF
SUSTAINABLE
DEVELOPMENT
GOALS

By
Snigdha Kuriyal
Dr. Bhumika Sharma

266

AN ANALYSIS OF
THIRD PARTY
FUNDING
IN
INTERNATIONAL
COMMERCIAL
ARBITRATION IN
INDIA

By
Yash Pratap Singh
Rohit Kumar

277

REPERCUSSIONS
OF RAPID
FASHION
FROM A GLOBAL
SUSTAINABILITY
PERSPECTIVE

By
Shikha Gurung
Dr. Bhawna Arora

293

THE
INTERCONNECTED
NESS OF PUBLIC
HEALTH AND
ENVIRONMENTAL
SUSTAINABILITY:
EXPLORING THE
ROLE OF AIR
QUALITY, CLIMATE
CHANGE AND
DISEASE BURDEN

By
Shaiwalini Singh
Dr. Rajeev Kumar Singh

SMART CITIES AND URBAN DEVELOPMENT: EVOLVING SUSTAINABLE URBAN GOVERNANCE IN THE AGE OF CLIMATE CHANGE



Dr. Prem Chand*

Abstract

Indubitably, the future lies in Urban Cities. In this regard, Smart cities are best suited to allow the intersection of 'Urban Governance'. However, integrating environmental sustainability with climate justice is a real challenge, as protecting the fundamental rights of vulnerable communities and marginalised persons is still an uphill task for the State. More than three hundred persons died in the extreme heat of summer season in 2024 in Delhi caused by climate change and most pertinently, all these people belonged to vulnerable communities. This poses a question, whether smart cities are inclusive cities or are meant only for the rich and elite class. The present research paper will examine how sustainable urban governance would be able to integrate 'Smart cities' with technological advancement to safeguard the human rights of the vulnerable and marginalised groups of society within the constitutional framework. The research will further explore as to how smart cities would be able to tackle the challenges posed by climate change and how they will mitigate its adverse effects and how smart cities would be able to provide a dignified life, equally to all, by following the constitutional right to provide clean and healthy environment under Article 21 of the Constitution of India. Smart cities must integrate both sustainable technological solutions and sustainable development goals to do climate justice. Smart cities are envisioned to adhere to constitutional values and sustainable development goals. The paper also asserts that smart cities, while applying technology to enhance sustainable urban infrastructure, should ensure the addressal of the vulnerabilities of both the vulnerable and marginalised communities. This will undoubtedly address issues of social justice and fulfill other responsibilities. To conclude, the research proposes as the

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outcome, the need to have ‘sustainable urban governance’, especially in the age of climate change, to engage with the designing of the ‘sustainable smart cities’, towards ‘sustainable development’ in order to integrate within its foretold, the human rights and the climate resilience. This also means that there is a strong need to have a robust constitutional framework to ensure that ‘Smart cities’ should be aligned with international commitments also in order to foster the principle of ‘sustainability’. This also means that these new smart cities would also be able to address the issues born out of climate change and will protect the vulnerable and marginalised from its adverse effects.

Keywords: *Sustainable Development Goals 2030, Climate Change, Smart Cities, Urban development, Marginalised Groups. Sustainable Urban Governance.*

1. Introduction

The future of human settlements lies in urban cities, especially in ‘Smart Cities’.¹ Interestingly, on one hand, these ‘Smart cities’ are the main reason of climate change while on the other hand, they are themselves vulnerable to its impacts.² Urban development lies in the sustainable growth of urban cities, especially smart cities, which integrate modern cutting-edge technologies, including (i) Artificial Intelligence (AI) and (ii) the Internet of Things (IoT) along with (iii) the Big Data and (iv) Automation, so as to improve the urban living conditions and to make it more dignified. Smart cities promote sustainability through ‘Sustainable Urban Governance’ (SUG) by focussing on the (i) optimisation of the city services and also on the (ii) enhancement of the quality of life with the assistance of intelligent systems for promoting (i) sustainable transportation (ii) focussing on renewable sources of energy (iii) working on waste management and (iv) by engaging the citizens.³ In short, smart cities

¹By 2030, half of the Indian population would be in urban cities. UN-HABITAT, *Urbanization in India: Building Inclusive & Sustainable Cities*, available at : <https://unhabitat.org/india>, (last visited on 26.11.2024).

²Felix Creutzig et al., “Towards a Public Policy of Cities and Human Settlements in the 21st Century,” *Urban Sustainability* 29 2024, available at: <https://doi.org/10.1038/s42949-024-00168-7> (last visited on 26.11.2024).

³Brett M. Frischmann, Michael J. Madison, and Madelyn Rose Sanfilippo, *Governing Smart Cities as Knowledge Commons* 2 (Cambridge University Press, Cambridge, 1st edn., 2024).



comprise a “system of systems”, where principally the (i) technology (ii) governance and (iii) the community interact with each other by being interconnected with each other.⁴ SUG assists in evolving contemporary urban governance, where, on the one hand, are the challenges born out of change in the climatic conditions and on the other hand, is development.⁵ Both the aspects require equal attention. Consequently, a holistic contemporary policy of SUG is warranted to tackle the complex global issues that are in fact, threats to mankind, such as the adverse effects of climate change, which is also now established as a fundamental right within Article 21 (right to life) of the Constitution of India.⁶ The right against adverse effects of climate change (RAAECC) is at the inception state only, and therefore, it requires much judicial vigour to define it and later, to create its essentials so that it can be implemented appropriately and the marginalised and the vulnerable also be a part of climate justice, who presently are facing the major brunt of climate change, by facing the extreme natural calamities. However, these essentials can be determined only over time, as and when the urban cities will face the brunt of climate change. This right is extremely crucial and will evolve with every passing climate change-related event⁷ and will prove to be a critical right for protecting the marginalised and vulnerable strata of urban cities. The question here first is to define urban and smart cities and then to examine how Smart Cities and urban development are working hand in hand to evolve sustainable urban governance in the present times, where climate change is causing havoc. Consequently, every State is designing indigenous policies to tackle the adverse effects of climate change. Building smart and sustainable cities is one such step in that direction. Therefore, it is necessary first to define the terms ‘urban cities’ and other related nomenclatures and only then, explain the smart cities.

1.1 Urban Cities

Defining ‘urban cities’ is an uphill task, as so many parallels of smart cities are already present in the global landscape. For example, at various places,

⁴*Ibid.* at 288.

⁵International Electrotechnical Commission (IEC) Editorial Team, “Smart Urban Planning for Cities of the Future,” *available at*: <https://www.iec.ch/blog/smart-urban-planning-cities-future> (last visited on 26.11.2024).

⁶Rights against the Adverse Effects of Climate Change was instilled by the Supreme Court of India in *M K Ranjitsinh v. Union of India*, 2024 INSC 280.

⁷The extreme weather conditions, such as (i) the extreme heat of the Delhi summer in 2024 and (ii) the Wayanad landslides of 2024, proved to be major disasters.



they are also known by the term ‘Megacities’⁸ and due to their dense populations and messy conditions, are also at times known as the ‘Mess Cities’⁹. In the present times, at various places, they are also addressed as ‘Sustainable cities’¹⁰ or ‘Green facades’¹¹ as these cities are environmentally sensitive in their approach. There are places where they are defined as ‘Resilient Cities’¹² also, as they show resilience towards the contemporary problems of the urban cities, such as addressing the adverse effects of climatic changes in the atmosphere and due to their day-to-day reactions to contemporary issues, they are also at places termed as ‘Reactive Cities’¹³. Anna argues that due to reactive planning, the big urban cities only end up, informally, absorbing the population inflow.¹⁴ Due to execution of environmental projects

⁸Abu Dhabi, Berlin, Shanghai, London, etc., are termed as mega-cities because of the number of people living there. Shanghai has a population of 25.5 million. Danielle Spiegel-Feld, Katrina Miriam Wyman, et al. (eds.), *Global Sustainable Cities: City Governments and Our Environmental Future* 24 (New York University Press, 1st edn., 2023).

⁹Somdeep Sen, “Why are Indian cities a mess? Because they’re not about people: Urban projects are treated as political symbols, rather than vehicles to make the lives of citizens better,” *Al Jazeera*, May 10, 2023, available at: <https://www.aljazeera.com/opinions/2023/5/10/indian-cities-mess-not-about-people#:~:text=cities%20a%20mess?,Because%20they're%20not%20about%20people,the%20lives%20of%20citizens%20better.&text=Glance%20over%20the%20Economist%20Intelligence,an%20ever%20more%20unliveable%20environment> (last visited on 26.11.2024).

¹⁰Sustainable Cities (*Goal 11 of the Sustainable Development Goals, 2030*) are the need of the hour, as they integrate development with environmental protection.

¹¹Green facades help reduce stormwater runoff and heat flux, which in turn helps to decrease the speed of climate change. See Theingi Aung, Sui Reng Liana, Arkar Htet, and Amiya Bhaumik, “Implementing Green Facades: A Step Towards Sustainable Smart Buildings” 2 *Journal of Smart Cities and Society* 41-51 (2023).

¹²Resilient Cities are capable of addressing the issues related to climate change.

¹³Reactive urban cities primarily challenge contemporary issues affecting them, such as (i) rapid urbanization, (ii) climate change, and (iii) related infrastructural demands, without any proactive planning to mitigate such issues. For example, Mumbai, one of the urban cities of India, faces monsoon floods that affect a huge number of people every year. The Government, as a reactionary measure, works on immediate disaster management instead of having an integrated flood management strategy. See Smruti Koppikar, “Muddling Through Monsoon is Mumbai’s De Facto Response”, *The Hindustan Times*, July 04, 2019, available at: <https://www.hindustantimes.com/mumbai-news/muddling-through-monsoon-is-mumbai-s-de-facto-response/story-5X7X45UcGOCRRZkZp2tWBI.html> (last visited on 27.11.2024).

¹⁴Anna Wellenstein, “The Biggest Mistake of Cities is Their Reactive Planning”, *Habitat for Humanity*, available at: <https://www.habitat.org/emea/stories/biggest-mistake-cities-their-reactive-planning> (last visited on 28.11.2024).



and working on aesthetics, they have also been defined as ‘Eco-Cities’¹⁵ whose design is more sustainable towards the environment or because of composition of elite population comprising of ultra-high net wealth persons, there are cities known as ‘Elite Cities’¹⁶. There are also a set of cities that are termed as ‘Digital Cities’¹⁷ and in a similar fashion, there are certain other urban cities that are termed as ‘Tech-Driven’¹⁸ cities. Many cities are also known as ‘Knowledge Cities’¹⁹ or ‘Ivory Towers’²⁰ cities. These urban cities can also be termed as ‘Global Cities’²¹ or the ‘Unequal Cities’²². Essentially, all these urban cities, in one way or another, have some urban development policy executing ‘Sustainable Urban Governance’ as a model to address the modern complex problems such as climate change, while accommodating all, including the concerns of the marginalised and vulnerable groups of society.

¹⁵Simon Elias Bibri, “The Eco-City and Its Core Environmental Dimension of Sustainability: Green Energy Technologies and Their Integration with Data-Driven Smart Solutions” 3(4) *Energy Informatics* 2 (2020). Eco-cities work on integrated urban planning to ensure the well-being of citizens to harness the ecological systems by protecting and nurturing the environmental assets for future generations.

¹⁶Max Koch, Kajsa Emilsson, Jayeon Lee, and Håkan Johansson, “Structural Barriers to Sufficiency: The Contribution of Research on Elites” 5(1) *Buildings and Cities* 268–282 (2024).

¹⁷Digital Cities comprise urban areas that use digital technology to collect data and accordingly, deliver services. The State uses digital technology in ‘Urban City’ planning and transportation simulations.

¹⁸Tech cities are global urban cities where technology ecosystems are groomed such as the San Francisco Bay Area of the USA, which is the hub of Silicon Valley.

¹⁹These urban cities prioritise their planning around ‘knowledge-based development and innovation’, and because of this, they invest more in ‘education’ and ‘research’. These cities are also known as information-driven Cities. One can easily find good universities and research institutions in such cities. In India, Bangalore and in the US, Boston cities are classic examples of knowledge cities.

²⁰These cities heavily planned themselves around higher education and other intellectual pursuits and therefore, prominent universities were often found there. However, they emphasised theoretical knowledge more than the practical aspects of real-world applications such as in Oxford, UK.

²¹Saskia Sassen first used the term global cities to refer to cities with key locations for finance and specialised service firms, such as London and Tokyo. Saskia Sassen, *The Global City: New York, London, Tokyo* 126 (Princeton University Press, New York, 2nd edn., 2001).

²²Unequal growth leads to the making of unequal cities.



1.2 Challenges in Designing Smart Cities

There is a valid concern prevalent in the Indian context, that is of designing ‘Smart cities’, which is a new buzzword, to address contemporary problems such as the security of the State, climate change and other types of health hazards born out of, an environment which is going beyond control, faced by the Smart cities. Smart cities broadly necessitate a sustainable urban policy to amalgamate both information and communication technology (ICT) and internet technologies. These are essential components to reshape the structure of smart cities, including other vital areas, such as advanced infrastructure and transportation as well as the environment and healthcare. It also includes governance, particularly for developing a sustainable ecosystem aimed at minimising the threats to the urban and smart life of the smart cities. And this novel framework of smart cities is expected to have the convergence of (i) ICT technologies (ii) sustainability and (iii) performance, which are the prime indicators in various sectors, including social and economic, along with technical.²³ However, there are various challenges to Smart cities, such as tackling both air and water pollution, which is affecting the cities’ lives the most and is at its peak.

1.3 Handling Air and Water Pollution in Urban Cities

Air and water pollution are challenges that almost every urban city is facing in India. For example, Delhi, which is one of the leading urban cities in India, which is witnessing the challenge of deteriorating air quality due to severe air pollution²⁴, which has even forced the schools to go online²⁵ during winters so that the children can be saved from the toxic air prevalent in the atmosphere and which has larger health hazards such as, increase in lungs’ related ailments, chronic asthma, etc. Different people have different level of exposure to atmosphere and accordingly, air pollution has different effects on every

²³Danuta Szpilko, Antonio de la Torre Gallegos, Felix Jimenez Naharro and Agnieszka Rzepka, “Waste Management in the Smart City: Current Practices and Future Directions” 12 *Resources* 115 (2023).

²⁴Delhi’s Air Quality Index (AQI) dropped to 999 by the weekend, 22.11.2024, making Delhi one of the most polluted urban cities and capitals in the world. The World Health Organisation (WHO) has set 25 as the limit and anything above 500 is a severe public health emergency. “*Delhi’s Air Quality Index (AQI) Drops to 999, Declared Severe Public Health Emergency*”, NDTV, November 22, 2024, available at: <https://www.ndtv.com/air-pollution-quality-index> (last visited on 29.11.2024)..

²⁵Sophiya Mathew, “Delhi Air ‘Severe Plus’: More Curbs Kick In, Schools Go Online Barring Classes 10, 12” *The Indian Express*, November 18, 2024, p.1



person, which makes them more vulnerable than others, for example, traffic police officers, who are constantly being exposed to the outside environment are affected badly, as they have to regulate the traffic in the urban cities.²⁶ It is not only air pollution but also water pollution that gives headaches to the people of these smart urban cities. It has become problematic in the past many years to provide clean drinking water to urban cities, both due to its scarcity and also due to its contamination.²⁷ There are various reasons for water contamination and one such reason is the waste management problem. But, it has to be borne in mind that access to clean air and clean water is one of the foremost necessities of life and without which, sustenance is itself a doubtful question.

1.4 Persisting Problem of Waste Management and Smart Cities

Urban cities, especially Smart cities, constantly face the problem of tackling waste as these metropolitan centres become more environmentally sensitive. Due to increasing population, this problem is escalating day by day. Presently, landfills are the only solution they have. However, these landfill sites are being neglected, causing health hazards and which needs urgent and immediate attention.

1.4.1 ‘Legacy Waste’ in the Landfills: Environmental Disaster in Making

Due to the mishandling of waste management, landfills on the outskirts of these urban cities also cause water pollution. The Bandhwari landfill in Gurugram, Haryana, is a classic example of mismanagement, as it has become a toxic wasteland.²⁸ These landfills were planned to hold the processed waste only, but places like Bandwhwari landfills are sitting as the ticking time bombs, as due to negligence, they are now the hub of both water and air pollution. Any garbage unattended or left for over three months is termed as ‘legacy

²⁶ Upasika Singhal, "We've to Stand in the Open All Day, Breathe This Air ... Lekin Pet Ka Sawal Hai: Working Class Bears the Brunt" *The Indian Express*, November 24, 2024, Delhi, p.4.

²⁷ Rajarshi Bhattacharjee, "Decoding Delhi's Water Crisis: Causes, Impact, and Sustainable Solutions", *Business Standard*, May 31, 2024, available at: https://www.business-standard.com/india-news/decoding-delhi-s-water-crisis-causes-impact-and-sustainable-solutions-124053100784_1.html (last visited on 29.11.2024).

²⁸ Deepanshu Mohan and Shubhangi Derhgawen, "Turning the Sacred into Trash" 41(22) *Frontline*, November 2-15, 2024, pp. 76-81.



waste'. Swachh Bharat Mission 2.0, in 2021, promised to remove the mountains of garbage and, by removing legacy waste, make urban city centres garbage-free. But such policy measures are not implemented in their true letter and spirit, leading to such landfills, which are environmental disasters. Swachh Bharat Mission-Urban (SBM-U) has identified 2,424 sites of over one thousand tonnes of legacy waste. On May 15, 2024, the Haryana Pollution Control Board revealed the alarming state of groundwater contamination near the Bandhwari hills before the National Green Tribunal.²⁹ Similarly, the threat is also to the 30 unique tree species for whom Aravalli Hills is a home. To protect them, the Wildlife Institute of India has declared the area ecologically sensitive.³⁰ Since both flora and fauna have equal rights over the mother earth therefore, appropriate and adequate measures ought to be taken to address these critical issues.

2. Rare Metals and its Impact on Smart Cities and Sustainable Urban Governance

Rare Metals played a paradoxical role in the evolution of smart cities. On the one hand, they are enabling various environmental revolutions, such as the green revolution and the digital revolution and on the other hand, their extraction cost is very high. It has both environmental and economic costs associated with it. It also has geopolitical costs as it directly impacts the evolution and development of (i) smart cities (ii) urban growth and (iii) SUG in the context of adverse effects of climatic changes.

2.1 Over relying on the Rare Metals and Its Impact on Smart Cities

The infrastructure of Smart cities is completely technology-driven and relies heavily on rare metals for its sustenance. These rare metals are essential for building state-of-the-art smart cities, as they are utilised in all the important things and services there such as (i) various types of sensors (ii) different types of renewable energy systems such as solar and wind energy (iii) all types of electric vehicles and (iv) Internet of Things (IoT) infrastructure, etc.³¹ Smart city innovations revolve around rare materials such as neodymium, which is used in the manufacturing of magnets (used in wind turbines) and lithium which is used in the manufacturing of batteries, are central to smart city innovation³². The challenge here is the environmental cost attached to

²⁹*Ibid* at p. 79

³⁰*Ibid* at p. 78.

³¹Guillaume Pitron, *The Rare Metals Wars* 13 (Scribe, 1st edn., 2020)

³²*Ibid.* at 166.



the mining of these rare metals, which has extensive energy consumption and also leads to pollution. For instance, in many cases, extracting one kilogram of rare metals leaves behind a massive stock of toxic waste. And, while these smart cities promise SUG, which relies on the principles of sustainability, reliance on rare metals actually undermines the environmental goals of the State by using unsustainable mining practices as the foundation of the smart cities. This means that urban development in Smart cities depends on those resources that will increase the demand for rare metals in the international markets for building state-of-the-art smart urban infrastructures. As a result, this will intensify the geopolitical dependencies³³, mainly on those countries such as, China, which presently dominates the rare metal production in the world. This type of economic dependency for building Smart cities, which is completely smart technology driven and dependent, will make the State both economically and politically vulnerable to artificial supply disruption. There is also a social impact of mining operations of rare metals, as it often leads to human rights violations and mass scale development-induced displacement of the local communities, which certainly will raise questions of equity in sustainable urban governance. There is a paradox. On the one hand is dirty metals, which are essential for the smart technologies and on the other hand, is the greener ecological world. The objective of smart cities is to combat climate change through the usage of renewable sources of energy along with efficient systems. But, the production processes for the use of these technologies significantly contribute to the greenhouse gas emissions, which is one of the major reasons of climate change and environmental degradation. The trouble is further aggravated by the fact that, in most cases, the creation of solar panel infrastructure is affecting the marginalised and vulnerable communities³⁴ and also disturbing the ecological balance by being the cause of the extinction of various other living species, such as, the Great Indian Bustard³⁵. Therefore, it is proposed to have a lifecycle assessment

³³*Ibid.* at 4.

³⁴Pragathi Ravi and Mitul Kajaria, “Fishing in Photovoltaic Waters” 41(21) *Frontline*, Oct. 19–Nov. 1, 2024. The installation of the Solar Plant in the Nathsagar reservoir directly affects the livelihoods of traditional fisheries, hence affecting the delicate ecosystem of the place.

³⁵In *M K Ranjitsinh v. Union of India*, 2024 INSC 280, the problem of extinction of the Great Indian Bustard (GIB) due to the installation of significant infrastructure related to renewable sources of energy, solar panels and wind mills, was an issue. The Court initially in 2021 ordered stay on the installation of such structures. But, in 2024, the Court vacated the stay on the installation of big infrastructure for the solar panels and instead, instructed for the formation of a big committee to reconsider the issue.



at a policy level to have a holistic view of the environmental impact of the technological components. It is necessary to consider the entire lifecycle i.e. from extraction to disposal. The Court, while promoting the recycling of rare metals, can also mitigate the environmental impact and this will help (ii) reduce dependency on virgin mining operations. Consequently, one of the essentials of urban governance frameworks here is transparency, which directs them to enforce transparency in sourcing rare metals by ensuring ethical and other sustainable supply chains. Rare metals are critical for the success of green technologies, such as solar panels and wind turbines and their extraction often generates more pollution than traditional fossil fuels. This contradiction principally complicates the very narrative of smart cities as solutions for climate change³⁶.

3. Integrating Technology with Smart Cities: Evolving Sustainable Urban Governance

Despite understanding the fact that most of the modern technologies are relying on rare metals, it is difficult to be away from it, especially in the present times, as it is difficult to sustain these modern infrastructures in the absence of these technologies. The present urban cities, are facing the demographic boom alongside the dynamic urbanisation, which is reinforced by the forces of globalisation processes and also due to unprecedented flow of (i) enormous population (ii) the capital and (iii) information. And, cumulatively, all this is causing unprecedented challenges to the Smart Cities, which must adopt altogether, the new development strategies.³⁷ Therefore, the contemporary smart cities have evolved with the integration of technology with the infrastructure of smart cities. Undoubtedly, technology has its drawbacks and it is necessary to know the limits of its usage. The overuse of technology has its problems and therefore, its use in smart cities needs regulation so that these urban cities cannot be converted into ‘Surveillance cities.’ This problem is going from big to bigger, as the size of these urban cities is expanding like never before in the history of these cities. For example, in Delhi, the capital of India, almost 7,00,000 people are added every day in search of better livelihoods.³⁸ Hence, holistically addressing the present

³⁶ Guillaume Pitron, *The Rare Metals Wars* 25 (Scribe, 1st edn., 2020).

³⁷ P. Lombardi, S. Giordano, H. Farouh, and W. Yousef, “Modelling the smart city performance” 25 *The European Journal of Social Science Research* 137 (2012).

³⁸ Jill Ward, “Will future megacities be a marvel or a mess? Look at Delhi” *The Economic Times*, November 3, 2018, available at: <https://economictimes.indiatimes.com/news/politics-and-nation/will-future-megacities-be-a-marvel-or-a-mess-look-at-new-delhi/articleshow/66486600.cms?from=mdr> (last visited on 26.11.2024).



challenges, especially the smart cities, is a formidable task in itself. Without the help of technology, it would be difficult to address all the issues. However, the first major impediment towards the growth of urban development is climate change, as it is changing the nature and character of urban cities to a great extent. And smart cities, in this regard, are designed in a way to have the best of all types of urban cities discussed above, to not only tackle the brunt of climate change but also to evolve the principles and philosophy of sustainable urban governance.

3.1 Fulfilling Electricity Demands of Smart Cities and Marginalised and Vulnerable Communities

Electricity consumption in smart cities is expected to go up in order to maintain the smart infrastructure. Therefore, relying more on renewable energy sources is necessary, but this also comes at a cost. More importantly, the digital grids that provide electricity to the smart cities depend upon rare metals, whose extraction is an environmental hazard.³⁹ And, the installation of these big solar panels and wind turbines directly affects the ecology and also affects the local communities to a large extent.

3.2 Experiencing ‘Jouissance’ in Integrating ‘Smart Cities’ with ‘Technology’

The citizens of smart cities are experiencing jouissance and often derive paradoxical pleasure from technological innovations and their outcomes, efficiency in the context of improved urban living standards, coupled with many challenges attached to it and the complexities introduced by it. For example, they are enjoying the seamless integration of technology in their day-to-day lives, as it enhances their abilities and production capacities, by providing various types of smart mobility systems, along with the renewable energy solutions and also by introducing data-driven public services. Now, people can access the public transport through mobile applications also and can track them accordingly for better results. However, this pleasure comes with various contradictions also, as the very system which provide a comfort zone with convenience to lead a dignified life, comes with the concerns related to both the (i) surveillance and (ii) data privacy and it also comes with socio-economic disparities. For example, a citizen of a smart city of Singapore, might enjoy the efficiency of Artificial Intelligence (AI) driven traffic management

³⁹See chapter two of Guillaume Pitron, *The Rare Metals Wars* 26 (Scribe, 1st edn., 2020), which discusses the dark side of green and digital technologies.



systems, as it has reduced its commuting time to a great extent and this will exemplify his *jouissance* in harmony between the integration of technology and the urban life of the Smart Cities. Yet, it is the same individual, who might be feeling discomfort and may be grappling with, the very idea of living under the big eyes of the State, while being under the constant digital scrutiny, which in a way, reveals the dual nature of his experience while interacting with technology. Hence, while discussing urban development in the context of Smart Cities, there is a complex interplay between the happiness attached to the usage of technological advancements and the issues related to the existential dilemmas in the pursuit of building sustainable and inclusive smart cities for future. The introduction of technology in urban development has assisted cities in converting to smart cities, adding ease and comfort to human life, though it has its challenges. Therefore, whether the addition of technology has proved to be a boom or a bane for human beings living in Smart cities, is yet to be seen and analysed. Hence, the question of whether technology has actually assisted in human comfort or reduced the quantum of freedom, becomes very important. It is necessary, therefore, to have a policy of *SUG*, to integrate 'Smart cities' with the 'technological advancement' to protect and preserve the human rights of the vulnerable and marginalised groups of society within the constitutional framework.

4. Are Smart Cities Addressing the Adverse Effects of Climate Change?

Smart cities are designed to tackle the challenges posed by climate change and mitigate its adverse effects, providing a dignified life to all. They are being built with the constitutional framework to give a clean and healthy environment under Article 21 of the Constitution of India. To achieve the objective of 'climate justice,' Smart cities are designed to integrate sustainable technological solutions with sustainable development goals. Smart cities are envisioned to adhere to constitutional values prevalent in Parts III and IV of the Indian Constitution.

5. Social Justice and the Smart Cities and Climate Change: Addressing Issues of Marginalised and Vulnerable Persons

Smart cities have to plan themselves to address the new issues of Social Justice brought about by climate change, as the vulnerable and marginalised will face the brunt of climate change. As we have already witnessed in the summer of 2024, in Delhi alone, more than 300 persons died due to heat.⁴⁰

⁴⁰Refer Divya Gandhi, "India Scorching", *Frontline*, August 9, 2024, p. 9.



In most cases, the body temperature soars so high, which first leads to the delirium stage and which further leads to untimely death. In all these cases, the victims were the vulnerable and the marginalised class of the society, who are unable to adapt and adjust to the rapidly changing environment and fail to realise that the climate of these Cities has become worse in the last few years, more due to anthropocene activities. Smart Cities undoubtedly have to address climate justice in the light of the already existent social justice jurisprudence⁴¹.

5.1 Political Jouissance⁴² and the Smart Cities: Contradictions

The political jouissance in India always fuels the very enthusiasm towards the building of smart city initiatives, though it has also perpetuated a complete disconnect between the symbolic progress on the one hand and the lived realities of the vulnerable and marginalised communities, on the other. For example, vulnerable groups experience exclusion from these types of Smart city initiatives, which for them is in clear violation of the constitutional promises of equity and the building of sustainable urban governance. The political leaders promote these projects with high visibility and they undermine the climate resilience policies of sustainable development. They also, at times, exclude inclusive planning when it comes to designing Smart Cities. This is why this leads to making superficial progress instead of substantive growth. And, during these difficult times, when climate change is causing extreme natural calamities and also when the climate challenges have already escalated, the political jouissance emerges as a rhetoric for the formation of smart cities, which is also portrayed as a solution for the ‘global environmental crisis’. Political leaders also derive gratification by projecting these smart cities as the models of sustainability, despite the fact that the implementations of the above have failed to address the systemic vulnerabilities prevalent in the city. The urban flooding that had occurred in Tamil Nadu or Gujarat are the classic examples, when the vulnerable and the marginalised groups were more adversely affected than others. The smart city initiatives, had failed to address the prevalent systemic vulnerabilities such as (i) urban flooding and (ii) resource scarcity. In fact, social inequalities are also not being plugged by the smart

⁴¹Nickhil Kumar Sharma, Tom Hargreaves and Helen Pallett, “Social justice implications of smart urban technologies: an intersectional approach” 4(1)

Buildings and Cities 315 (2023)

⁴²Nicol A. Barria-Asenjo, *Political Jouissance* 10 (Bloomsbury, Great Britain, 1st edn., 2024).



cities, which then makes them elite and then in all certainty, the marginalised and vulnerable would face the adverse effects of climate change more. This is the reason why in the 2024 summers of Delhi, due to excessive heat caused by the climate change, more than 300 persons died and all of them were belonging to the vulnerable class. In the evolving narrative of SUG, the political jouissance reflects, both the motivational power to promote Smart Cities on the one hand and on the other, the existing limitations on the political investments in the smart cities. The present state of affairs can be described in this way that, here a political leader inaugurates, a state-of-the-art infrastructure in the smart park in a smart city, while categorically ignoring the unresolved issues of the informal settlements, slums, etc., who are living most of the time at the outskirts of these smart cities, which also reflects that there is an existing tension inherent in the political jouissance. Principally, the critical features of SUG in the context of smart cities are, *firstly*, the ‘Technological Integration’ by following the principles of Sustainability and implementing and executing ‘green infrastructure’ and ‘renewable energy solutions’. *Secondly*, the smart cities have resource-efficient systems at disposal, to combat the environmental challenges. *Thirdly*, the smart cities also provide for the ‘Citizen-Centric Services’, focussing on the improvement of quality of life by enabling (a) digital governance (ii) e-health and (iii) smart transportation. *Fourthly*, it provides for the ‘data-driven decision’ making. Thus, smart cities are clearly, mixed bags of technology and hassle.

5.2 International Best Practices: Smart Cities in Poland

In Poland, smart cities are developed by following certain sustainable principles of sustainable urban governance. Their focus is both on building infrastructure based on smart technology and also focuses on the enhancement of the urban efficiency across the sectors, including, (i) mobility, which is inclusive of making efficient use of the public transport, and also in providing an alternative to the petrol and diesel vehicles, by promoting cycles and other related means, (ii) effective sustainable urban governance, (iii) sources of energy, by promoting solar energy, (iv) protecting and preserving the environment, and (v) engaging citizens in forming policies related to sustainable urban governance, while also addressing multivarious challenges posed by the rapid urbanisation of the city and the adverse effects of the climate change.⁴³ For energy efficiency

⁴³Izabela Jonek-Kowalska and Radosław Wolniak, *Smart Cities in Poland: Towards Sustainability and a Better Quality of Life?* 1 (Routledge, New York, US, 1st edn., 2023).



and also for using renewable sources of energy, Poland uses smart grids and solar and wind power infrastructure and tries reducing the reliance on fossil fuel-based sources of energy, such as petrol and diesel. For example, Amsterdam uses contemporary decentralised automatic trash compactors, which run on solar energy, to optimise their city's waste management, which also assists in reducing carbon emissions.⁴⁴ Similarly, for sustainable mobility, Copenhagen has an integrated pedestrian and cycling system, which considerably reduces the carbon emissions from fossil fuel-based vehicles, and this also helps in enhancing mobility.⁴⁵ Vienna's Smart City carries various projects incorporating contemporary renewable energy systems that are citizen-driven and assist in building a zero-carbon economy.⁴⁶ And, to collect the data sustainably, Amsterdam uses 'Smart benches', which collect the environmental data from the atmosphere and immediately, utilise the solar energy, in doing real-time climate monitoring in Poland.⁴⁷ And, for enhancing the climate adaptation, various Smart City platforms were created like Madrid's MiNT to optimise all the urban services.⁴⁸

6. Conclusion

Smart Cities are indubitably, the future of Indian Urban Governance.⁴⁹ A comprehensive 'Sustainable Urban Governance' (SUG) policy is pivotal in addressing contemporary and complex issues, such as tackling the adverse effects and impacts of climate change. SUG will be significant, particularly in the context of smart cities, which are also going to be the future insulated cities⁵⁰ in addressing the problems of planning and governance. SUG will be significant in building an inclusive and transparent smart city, which will also be accountable to them. There is a strong need for participatory decision-making processes at the helm of affairs to integrate 'Smart city' planning to include within it the environmental, social and other economic considerations of the urban cities and also to create a conducive social and political environment, which will be resilient to contemporary issues, such as climate change, both

⁴⁴*Ibid.* at p. 15.

⁴⁵*Ibid.* at p. 59.

⁴⁶*Ibid.* at p. 8.

⁴⁷*Ibid.* at p. 15.

⁴⁸*Ibid.* at p. 11.

⁴⁹Feroze Varun Gandhi, *The Indian Metropolis 27* (Rupa Publications, India, 1st edn., 2023).

⁵⁰Insulated from the adverse effects of climate changes.



in terms of addressing its adverse effects and social challenges of inclusiveness. There are certain key aspects of SUG that need further deliberation.

6.1 Inclusive Decision-Making

Engaging diverse stakeholders, including citizens and government agencies, non-governmental bodies, private entities and marginalised and vulnerable segments of society, in Smart City planning will ensure that urban policies address the larger needs of residents and foster equitable and effective governance.⁵¹

6.2 Transparency and Accountability

Similarly, by developing open governance practices, a gap between the citizens and the government would be bridged, which is necessary for developing mutual trust amongst citizens and encouraging citizens' active participation in executing compliances in light of the government's sustainability initiatives.

6.3 Smart Cities and Sustainable Urban Governance: Ignoring Social Inequalities

The State, despite being aware of the undesirable situations in the context of the smart cities, chooses to tolerate it, which shows the stakeholders' tendency to be complacent in addressing the challenges within the SUG. In various smart city initiatives started by the State, urban planners randomly allow unsustainable practices to persist in the name of the nation's or society's progress.⁵² For example, despite knowing the cost associated with mining rare materials, which are a must for promoting smart technologies, urban planners are proceeding without exploring any of the other alternatives or promoting some policies based on recycling. In a way, this is a clear sign of accepting the environmental harm, which clearly reflects tolerance towards completely unsustainable practices. This will also promote social inequality in drafting policies related to smart cities, which will then disproportionately benefit the city's elite and affluent populations and exclude the vulnerable and marginalised communities from its ambit. Despite knowing these brutal

⁵¹Tzuhao Chen, J. Ramon Gil-Garcia and Mila Gasco-Hernandez, "Understanding social sustainability for smart cities: The importance of inclusion, equity, and citizen participation as both inputs and long-term outcomes" 1 *Journal of Smart Cities and Society* 135 (2022).

⁵²Islam Bouzguenda and Nadia Fava, "Towards smart sustainable cities: A review of the role digital citizen participation could play in advancing social sustainability" 50 *Sustainable Cities and Society* 101627 (2019).



facts related to exclusion, the State fails to take corrective action and rather chooses to celebrate the surface-level achievements of smart cities. This erodes the public trust in the State, as the governance model that tolerates inequality or environmental harm, undermines its credibility and public support. Smart cities should be used as an opportunity for genuine sustainable progress by addressing systemic issues instead of relying on short-term solutions, which cannot sustain urban resilience, especially in light of the adverse effects of climate change.⁵³

6.4 Integration of Climate Resilience

Sustainable Urban Governance has to incorporate both (i) the climate adaptation and (ii) mitigation strategies into urban planning⁵⁴, so as to enhance the Smart city's capacity and ability to take the challenges posed by the climatic changes and also to be able to positively implement the right against adverse effects of climate change. To address the contemporary issues related to climate change, especially when we are ready for the 'Smart Cities', there is an extreme need to re-engineer the concept of development to make it more (i) inclusive (ii) sustainable and (iii) affordable, so that this new model of development, must also have a space for the marginalised and the vulnerable persons of the society. There is a need for new imagination in designing new development schemes,⁵⁵ and also in addressing the visions of economic growth so as to address the issues related to (i) smoother energy transition and (ii) climate mitigation.⁵⁶

6.5 Policy Integration of 'Environmental Sustainability' with 'Climate Justice'

Integrating the principles of environmental sustainability and climate justice is necessary for the sustainability of smart cities and to make them inclusive⁵⁷. And this goal can only be achieved by balancing the advancements in technology with the prevalent equities of the society, by designing sustainable urban

⁵³Mengmeng Wang and Tao Zhou, "Understanding the dynamic relationship between smart city implementation and urban sustainability" 70 *Technology in Society* 102018 (2022).

⁵⁴Joshua Hallwright and John Handmer, "Progressing the integration of climate change adaptation and disaster risk management in Vanuatu and beyond" 31 *Climate Risk Management* 100269 (2021).

⁵⁵Sunita Narain, "Old Agenda with New Imagination" *Down to Earth*, 1-15 June 2024, p.7.

⁵⁶Trishant Dev, Tamanna Sengupta and Avantika Goswami, "Vision 2030" *Down to Earth*, 1-15 June 2024, pp. 8–10.



governance policy by prioritising (i) the renewable energy sources (ii) developing an efficient waste management system and building green infrastructure. Because these technological developments come at the cost of vulnerable stage of society, therefore, achieving climate justice requires that the benefits of achieving sustainability be distributed equitably and similarly, the marginalised community should be adequately protected from the brunt of adverse effects of climate change. All should enjoy these advanced green solutions and the same must not be restricted to the affluent class of the cities. The resource extraction which is degrading the environment, especially in developing countries, creates a paradox where all the efforts to achieve environmental sustainability in creating infrastructures for the smart cities indirectly perpetuate the ecological or environmental injustice somewhere else, which highlights the problems in aligning the local sustainability policies of sustainable urban governance with that of the global climate justice⁵⁸. There is a clear policy gap in implementing environmentally sustainable policies, which cater to addressing both environmental sustainability and climate justice. For Smart cities, the requirement is to have a governance framework, which should be both (i) inclusive as well as (ii) adaptive. Because of the wholly fragmented and scattered decision-making processes, along with the insufficient representation of the vulnerable and the marginalised voices and also because of the conflicting governmental priorities between the (i) economic growth and the (ii) environmental sustainability, has created huge barriers in achieving the integration of the smart cities and the objectives of sustainable urban governance. These problems can be addressed by adopting a holistic approach⁵⁹, by prioritising inclusivity as the first goal, followed by ethical sourcing of the rare metals used in creating the web of technological innovations in building smart city infrastructures and by the equitable distribution of the resources in urban development by evolving sustainable urban governance⁶⁰ to mitigate the adverse effects of climate change in the smart cities.

⁵⁷Katrine Skagena and Elin Lerum Boasson, "Climate policy integration as a process: from shallow to embedded integration" 26(3) *Journal of Environmental Policy & Planning* 279 (2024).

⁵⁸Deirdre De Burca, Jyotsna Mohan and Ajay Jha, "Climate Justice And Policy Coherence For Sustainable Development: Lessons from the Asia-Pacific Region", *FORUS, Asia Development Alliance*, 2023, p. 8, available at: <https://www.forus-international.org/pt/pdf-detail/97879-climate-justice-and-policy-coherence-for-sustainable-development-lessons-from-the-asia-pacific-region> (last visited on 30.11.2024).

⁵⁹Naim Kapucu, Yue Ge, Emilie Rott and Hasan Isgandar, "Urban resilience: Multidimensional perspectives, challenges and prospects for future research" 4(3) *Urban Governance* 163 (2024).

⁶⁰Iva Mrak, Denis Ambruš and Ivan Marovič, "A Holistic Approach to Strategic Sustainable Development of Urban Voids as Historic Urban Landscapes from the Perspective of Urban Resilience" 12(11) *Buildings* 1852 (2024).

HEALTH RIGHTS OF TRANSGENDER COMMUNITY AND SUSTAINABLE DEVELOPMENT IN INDIA



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Abstract

The health rights of the transgender community in India are impacted by poor physical and mental health status. Recent legal reforms, such as the decriminalisation of Section 377 and amendments to the 'Transgender Persons (Protection of Rights) Bill', aim to improve the health of transgender individuals in India. However, the 'Transgender Persons (Protection of Rights) Act' of India still lacks the guidelines needed to access rights substantively, leading to gaps between legal recognition and practical realities on the ground for the transgender community. In the context of this research, the purpose of the study is to gain an understanding of the susceptibility of transgender individuals to a variety of health risks, including HIV, as well as the obstacles that they face when attempting to access healthcare services. Besides, the researcher aims to evaluate the efficacy of the provisions contained within the 'Transgender Persons (Protection of Rights) Act, 2019', which pertains to the health rights of the transgender community.

Key Words: *Transgender-Health-Healthcare services- Constitution*

1. Introduction

The idea of sustainable development fulfills current demands without jeopardizing the capacity of subsequent generations to satisfy their own need. Right to health and gender equality have vital place in the United Nations Sustainable Development Goals to be achieved by 2030¹. Despite the fact that the transgender issues are not explicitly discussed in the agenda, it could be widely understood to circumscribe the issues confronted by the members of transgender community. According to the World Health Organization, "every

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¹The United Nations, Report of the World Commission on Environment and Development: Our Common Future, 1987 available at <http://www.sustainabledevelopment.un.org/content/documents/5987our-coomon-future.pdf> (last visited on August 15, 2023).



human being, regardless of their ethnicity, religion, political philosophies, socioeconomic status, sex, gender or any other distinguishing factor, has the inherent right to the greatest attainable standard of health.”²

The legislatures in India have enacted the ‘Transgender Persons (Protection of Rights) Act, 2019’ which recognizes their various health rights in section 15 that mandates the appropriate Government to establish HIV Sero-Surveillance Centres, to provide medical facilities that includes arrangement for conducting SRS (Sex Reassignment Surgery), anterior and posterior SRS and hormonal therapy counselling, review of medical curriculum to address issues specific to transgender community, to introduce a comprehensive insurance plan for covering the different health related expenses of trans-people etc. Nevertheless, the major health related issues are neither recognized nor addressed in the legislation. Establishment of separate wards for non-binary people, follow up treatments and hormone therapy of transgender prisoners are some of the instances.

Health is a condition of total well-being of body and mind rather than a state of absence of any infirmity.³ Right to health is one of the most important human rights of every individual. This precious right is guaranteed to the mankind in many national constitutions⁴ as well as under various international human rights documents.⁵ It is widely believed that the concept right to health has originated after the Second World War, particularly with the emergence of the World Health Organization.⁶ Apart from this various other core international human rights documents also recognizes right to health as a basic rights which the human beings are entitled to irrespective of gender *inter alia* other factors.

The international documents on human rights generally recognize three facets

²The World Health Organization, Constitution of the World Health Organization, 1948 available at <https://www.apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf?ua=1> (last visited on October 4, 2023).

³Ibid.

⁴The Philippine Constitution, 1987, art. II, section 15&16; The French Constitution, 1958; The Constitution of India, 1949, art. 21; Japanese Constitution, 1948, art. 25.

⁵The Universal Declaration of Human Rights, 1948, art. 25; The Convention on the Rights of Child, 1989, art. 24(1); International Covenant on Economic, Social and Cultural Rights, 1966, art. 12(1); Convention on the Elimination of Discrimination Against Women, 1979, art. 12; The African Charter on Human and Peoples’ Right, 1981, art. 16

⁶Adam Gaffney, To Heal Humankind The Right to Health in History 1 (Routledge New York & London I Edn., 2018)



of the right to health. They are, firstly, the recognition of the very same right; secondly, the fixation of standards for addressing the various health needs of different vulnerable groups; and finally, suggesting the methods of its implementation.⁷ In the same manner, the principle of non-discrimination under various international human rights documents indirectly ensures the right to health by stating that the basic rights including the right to health are available to everyone irrespective of race, sex, gender etc.⁸

The objective of the study with respect to this research is to understand the vulnerability of transgender people to various health hazards, including HIV, and barriers to accessing healthcare services. The researcher also intends to evaluate the effectiveness of the provisions in the Transgender Persons (Protection of Rights) Act, 2019, concerning the health rights of the transgender community.

2. The concept of Transgender

The term transgender is a complex concept. The term “sex” refers to the biological classification of an individual at birth as male, female, or occasionally intersex, while gender pertains to the cultural roles associated with being male or female, or a combination of both. The intricacy of the concept of transgender is evident in instances where both the legislature and judiciary have struggled to frame and interpret it. Transgender is a person who stands outside the boundary of socially accepted gender binary, such as male and female. In other words, transgender is someone whose gender does not conform to his or her sex assigned at the time of birth. In 1999, Kamala Jaan, a hijra, was elected as the mayor of Katni district in Madhya Pradesh. The defeated candidate contested Kamala’s candidature, asserting that the Katni district was designated for female candidates and that Kamala did not meet the criteria as a female. The absence of conceptual clarity prompted the court to consult ancient holy literature, including the Mahabharata and the Kamasutra. Additionally, the judge cited historical materials from the courts of Akbar and Alauddin Khilji to assert the existence of groups of individuals who were neither male nor female. Additionally, the court referenced the standard dictionary definition of “female,” defined as one capable of delivering a child, and concluded that

⁷Virginia A. Leary, “The Right to Health in International Human Rights Law”, 1 Health and Human Rights 26 (1994).

⁸The Charter of United Nations, 1945, art. 25; the Universal Declaration of Human Rights, 1948, art. 2; the International Covenant on Economic Social and Cultural Rights, 1966, art. 2; the International Covenant on Civil and Political Rights, 1966, art. 2.



a transgender is a castrated man. It is also noteworthy that the same view has been upheld by the High Court of Madhya Pradesh on appeal.⁹ According to the 'Transgender Persons (Protection of Rights) Act, 2019', a person can be considered transgender even if they have not undergone hormone therapy, sex reassignment surgery, or laser therapy.¹⁰

3. Right to Health in the Gender Perspective

It must be recognized at the very outset that a major reason behind the initiation of litigation to recognize the existence of the transgender community by the Naz Foundation was the concern about their failure of the efforts to prevent HIV/AIDS among the members of the transgender people in India.¹¹ The scholars argue that a discussion about the development of transgender rights would be incomplete without addressing the roles played by certain civil society organizations in HIV/AIDS prevention.¹² As per studies, the transgender population is 13 times more vulnerable to HIV/AIDS than their cisgender counterparts. Ironically, they are hesitant to seek medical care because of the discrimination and humiliation that they face from society in general.¹³ Section 377 that penalized the unnatural sexual intercourse in the Indian Penal Code, 1860, has identified itself as a major barrier for reaching out to members of the sexual minority, including the transgender community in India. Therefore, the civil society organizations working in the field of prevention of HIV/AIDS have started acting for the abolition of Section 377, which in turn led to the filing of a Writ Petition by a prominent non-governmental organization called the NAZ Foundation. However, another NGO, AIDS Bhedbhav Virodhi Andolan, initiated the first recognized legal battle in this connection, aiming to prevent sexually transmitted diseases. The case was initiated due to the unusual spread of HIV/AIDS in Tihar Prison, which was caused by inmates engaging in sodomy. Therefore, the NGO filed a Writ Petition before the High Court of Delhi to direct the prison authorities to distribute condoms to the prison inmates. The Writ Petition specifically prayed for the abolition of Section 377 of the Indian Penal Code and the implementation of the government's national AIDS program, inter alia. However, the petitioner organization's dissolution after seven years of conducting the case led to the dismissal of the Writ Petition.

⁹Sadiq Ali & Ors v Kamala Jaan, Election Petitions No.12/2000, 13/2000, 18/2000 & 21/2000 (First Additional District Court, Katni) (Unreported)

¹⁰The Transgender Persons (Protection of Rights) Act, 2019, S.2(k)

¹¹Naz Foundation v NCT of Delhi, 160 DLT 277

¹² Suparna Bhaskaran, *Made in India: Decolonizations, Queer Sexualities, Trans/National Projects* 7 (Palgrave Macmillan, New York, 2004).



4. Right to health of transgender community in India

Discrimination, prejudice, and aggression, coupled with other social, political, and economic conditions, severely affect the physical, psychological, and behavioural health of transgender individuals. Even in so-called progressive societies, the harassment and discrimination against transgender people is a shocking reality. Even in so-called progressive societies, the harassment and discrimination against transgender people is a shocking reality. For instance, a 2019 survey by the 'Behavioural Risk Factor Surveillance System (BRFSS)' in the United States reveals that twice as many transgender people as cis-gender people are likely to suffer from depressive disorder and poor mental health. The survey also showed that one in four transgender people have attempted suicide at least once in their lives, and that the suicide rate in the transgender community is four times higher than that of their cis-gender counterparts.¹⁴ As pointed at the outset, the right to health constitutes a basic constitutional protection in several jurisdictions. In India also it is a fundamental right guaranteed under Part III of the constitution.¹⁵ Although the same is not directly given, the Supreme Court of India has repeatedly recognized the same right as one of the most significant fundamental rights.¹⁶ Differential treatment in access to healthcare affects the quality of transgender individuals in the global level in contrast to their cis-gender counterparts. This phenomenon exists even in those jurisdictions where their rights are officially acknowledged. In India, where religions and culture play a vital role in shaping the status of sexual minority including transgender people, their condition is very pathetic. The general discrimination against the transgender community reflects in all walks of their life and thereby adversely affects the ability in accessing healthcare facilities as well. It is also noteworthy that 'the health rights of

¹³Press release, UNAIDS and the LGBT Foundation launch groundbreaking study on happiness, sex and quality of life for LGBTI people, available at: https://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2019/may/20190514_survey (last visited on Oct. 27, 2019).

¹⁴Report on Protecting and advancing Health Care for Transgender Adult Communities, available at <http://www.americanprogress.org/article/protecting-advancing-health-care-transgender-adult-communities/> (last visited on January 28, 2023).

¹⁵The constitution of India, 1950, art. 21

¹⁶*Paschim Banga Khet Mazoor Samiti v State of West Bengal* (1996) 4 SCC 37; *Consumer Education and Research Centre v Union of India* AIR 1995 SC 922; *Burrabazar Fire Works Dealers Associations and Others v Commissioner of Police, Calcutta*, AIR 1998 Cal. 121; *Parmanand Katara v Union of India* 1989 SCR (3) 997



transgender community in India are protected under the Transgender Persons (Protection of Rights) Act, 2019'. Consequently, it is the responsibility of the appropriate government to implement measures such as:

- a) To set up distinct laboratories for conducting AIDS tests as per the recommendations provided by the National AIDS Control Organization.¹⁷
- b) To offer medical facilities for sex reassignment surgery and hormonal therapy.¹⁸
- c) To provide counselling prior to and subsequent the procedure for sex reassignment.¹⁹
- d) To create a health manual focused on transgender health, specifically addressing pre- and post-sex reassignment surgery stages, in accordance with the recommendations established by the World Professional Association for Transgender Health.²⁰
- e) To evaluate the curriculum of physicians specializing in transgender health in accordance with developing concerns.²¹
- f) To guarantee access to hospitals for transgender individuals.²²
- g) To implement comprehensive insurance plans that includes the costs of both sex change procedures and hormone therapies for transgender individuals.²³

5. The Transgender Health Scheme in India

The Government of India has introduced an insurance scheme exclusively for the members of the transgender community named “Ayushman Bharat TG Plus” under its flagship health scheme, “Ayushman Bharat.” The main object behind the introduction of this scheme is to provide transgender people with financial aid to improve their health situation through proper medical care and also to undergo Sex Reassignment Surgery and related treatments like hormone and laser therapy. The scheme specifically benefits transgender

¹⁷Supra note 10, s. 15(a).

¹⁸Ibid. s. 15(b).

¹⁹Id. s. 15(c).

²⁰Id. s. 15(d).

²¹Id. s. 15(e).

²²Id. s. 15(f).

²³Id. s. 15(g).



people who possess a Transgender Registration Identity Card or Gender Recognition Certificate²⁴ under the provisions of the Act of 2019.

However, studies reveal that the protection of the right to health extended under the Act of 2019 is insufficient to the interests of the transgender community.²⁵ This mostly results from structural challenges, including gender identity discrimination, the inability to access public health facilities in many regions, an absence of accountability and transparency in service delivery, and the exorbitant prices of treatment in the private healthcare sector. Despite robust jurisprudence safeguarding the right to health, which is encompassed within the fundamental right to life and liberty as articulated in Article 21 of the Constitution, it is a significant concern that members of transgender community are restricted from exercising this right due to systemic and legal impediments.

It is in this connection that ‘the Ministry of Health and Family Welfare Directorate General of Health Services, Government of India have issued a notification directing all the State Governments and Union Territories to protect the specific health care needs of the members of transgender community’.²⁶ The Ministry also recognized that the Transgender community in India faces an increased risk of various health challenges, such as different types of cancers, sexually transmitted infections, cardiovascular disease, and mental health issues that include substance abuse and suicide attempts. Stigmatization and discriminatory attitudes create obstacles to appropriate access to healthcare services.

6. Problems faced by transgender community with respect to access to right to health in India.

The transgender community in prisons and correctional facilities frequently struggles to access their health rights. People widely acknowledge that inmates in India’s prisons and correctional facilities receive sufficient medical attention. However, costly or specialised medical treatment remains inaccessible for transgender inmates. Transgender individuals who undergo Sex Reassignment

²⁴Id. s. 7.

²⁵Dipika Jain, “Right to Health and Gender-Affirmative Procedure in the Transgender Persons Act 2019 in India”, 205 Indian J Plast Surg. (2022).

²⁶Ministry of Health and Family Welfare, Directorate General of Health Services, Government of India, Notification No. C.18018/05/2024/SAS-III dtd. August 21, 2024 available at <http://www.transgender.dosje.gov.in/docs/AdvisoryfromDGHS.pdf> (last accessed on September 20, 2024).



Surgery require prolonged medical attention. In jails, there is no assurance of receiving individualized care from a qualified physician who alone can professionally monitor their medical needs. Additionally, transgender inmates who undergo Sex Reassignment Surgery required to be given hormone treatment for an extended duration, and any interruption in the administration of these medications may result in life-threatening medical consequences.

One of the major lacunae contained in the Act is that it does not provide any provisions that ensure gender-specific treatment. In other words, individuals who cross-dress or whose gender identity does not correspond with their assigned sex at birth may seek medical care from doctors whose gender aligns with their self-perceived gender. Generally, doctors have an ethical obligation to treat all individuals, regardless of their sex or gender. However, only victims of sexual offenses currently receive gender-specific treatments in India. Consequently, meeting the request of a female transgender person for medical treatment from a female physician may be untenable. In the notification, the Ministry has made certain directions about the measures to be adopted by the competent authorities in both the States and Union Territories. They include:-

1. Organizing awareness initiatives across all tiers of healthcare and throughout the community to enhance knowledge of the psychosocial dimensions and challenges faced by the transgender population.
2. Prohibition of forced surgical procedures or treatments for the forced conversion of sexual orientation or gender identity.
3. Ensuring of sex Reassignment Surgeries at designated government or aided hospitals.
4. The designated hospitals that perform the sex reassignment surgery must follow a Standard Operating Procedure for conducting the surgery.
5. The integration of health issues related to the transgender community into the curricula of various medical, nursing, and paramedical courses so as to educate and prepare future medical professionals to address the medical requirements of the community.
6. Facilitating the accessibility of medical tele consultation facility for transgender people.
7. Sensitize the staff at various levels so as to give them knowledge about different transgender terminologies and their health care requirements.



In addition to this notification, ‘the Government of India’s Ministry of Home Affairs’ issued another noteworthy notification in this regard.²⁷ The notification also mandates the prison authorities in the country to provide the transgender inmates with access to required healthcare facilities. The notification also instructs the authorities to refer trans-people to specialised medical professionals if the in-house doctors lack expertise in the relevant field. A perusal of these directions issued by the Ministry in August 2024 is apparently an implied affirmation that the various health needs of the transgender community have not been properly taken care of even after the enactment of the Act of 2019.

7. Conclusion and suggestions

Examining all the facts and literature, it is clear that the transgender community experiences harassment and discrimination in all spheres of their social lives, which ultimately has an impact on their physical and psychological health. Despite its unique characteristics, the Act of 2019 appears to lack effectiveness. Therefore, it requires comprehensive revision, incorporating recommendations and changes suggested by various stakeholder groups that include the transgender community, activists, and scholars. They include:

1. **Inclusive education**—Inclusive education involves delivering education in a way that raises awareness about the various issues faced by transgender individuals. The sensitization through inclusive education will result in the reduction of marginalization, discrimination, and harassment, which ultimately leads to improved mental health for members of the transgender community. Therefore, the curriculum at the school level must integrate the concept of transgender and address various issues related to the transgender community.
2. **Sensitizing law enforcement agencies.**—Sensitizing law enforcement agencies is crucial in tackling the issues confronted by the transgender community. The trans-people faces unique issues such as discrimination and harassment in all areas of social life, which ultimately lead to litigation and other legal proceedings. Studies indicate that the state, as the most powerful institution, stigmatizes transgender people through various antagonistic laws, thereby impacting their

²⁷Ministry of Home Affairs, Government of India, Notification No. 17013/26/2021-PR dtd. January 10, 2022 available at: http://mha.gov.in/sites/default/files/Advisory_TransgenderPersonsInPrisons_10012022_0.PDF (last visited on February 10, 2024).



physical and psychological health.²⁸ Therefore, it is crucial to sensitize the members of various law enforcement agencies, such as police and court officials, in order to enforce the rights of transgender people.

3. **Separate wards in hospitals**—In simple words, transgender people are gender nonconforming individuals. The transgender people who already undergo sex reassignment surgery may not be comfortable staying with the cisgender people. It is also noteworthy that different types of transgender people exist, including male-to-female and female-to-males. There should be separate wards in the hospitals, at least for the members who belong to this unique group of people.
4. **Designated hospitals for Sex Reassignment Surgery and other treatments focused on transgender health issues**—The World Professional Association for Transgender Health Standards of Care²⁹ provides certain guidelines for the doctors and hospitals that perform the Sex Reassignment Surgeries and hormone therapies. The guidelines include crucial directives such as requiring treatment participants to have the ability to provide informed consent and to have gained the majority age in their home country. The designated hospitals must also have the facility for post-surgical treatments and therapies.

²⁸Report of PUCL (People's Union for Civil Liberties). Human rights violations against sexuality minorities in India. A PUCL-K fact-finding report about Bangalore 2001, available at: <http://www.pucl.org/Topics/Gender/2003/sexualminorities.pdf> (last visited on August 10, 2018).

FORCED EVICTION OF ‘GADIA LOHAR’ COMMUNITY IN PREM NAGAR, KOTLA, DELHI: CONTEXTUALIZING THE HUMAN RIGHTS VIA VOICES OF DISPOSSESSED



Ms. Swati Agarwal*

Abstract

India is a homeland to various Denotified Tribes, constituting 10% of India's population. But even after 76 years of independence DNTs of India are governed by Habitual Offenders Act(s), an adaptation of the Criminal Tribes Act (1924). One such community is 'Gadia Lohar', temporarily settled in 'Gadia Lohar Basti' and 'JJ Camp' Prem Nagar, Kotla, South Delhi, which has a history of displacement and struggle. They were displaced from their settlement near Tyagaraj Stadium in 2009 to make way for Commonwealth Games. Many of them lost their traditional source of income and children dropping out of schools. This research paper will analyze the effect of their displacement in 2009 to widen the road and construct an underpass to connect Tyagaraj Stadium with Jawaharlal Nehru Stadium and violation of their human rights in the light of Madras Restriction of Habitual Offenders Act, 1948 (as applicable in Union Territory of Delhi).

Keywords - *Criminal Tribes, Denotified Tribes, Habitual Offenders, UN, DNT*

Introduction

India is a polygenetic population, with an exceptional amalgamation of sundry cultures and races. Indian society is multi-ethnic, multi-racial, multi-linguistic and multi-religious. The Constitution of India provides equal privileges, rights, duties and liabilities to all its citizens, irrespective of their gender, caste, sex, race, class, language and religion. But with India's 3.5 trillion economy and enactment of various progressive laws and schemes and programs, we can also detect the unequal distribution of resources and socio-economic inequality. Amongst them one of most marginalized groups are 'Denotified, Nomadic

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and Semi-Nomadic Tribes'. Due to many historical and colonial policies, several tribes have been dispossessed from their lands. They were marginalized and are deprived of their rights and privileges.

The term “Denotified Tribes (DNTs)” means all those nomadic and semi-nomadic communities who were “notified” as ‘criminals’ under the notorious Criminal Tribes Act of 1871 and later were “Denotified” by the repeal of the Act after the independence of India in 1949. With the enactment of Criminal Tribes Act of 1871 in north - India they were considered as ‘born criminals’, which was later extended to the whole of British India in 1911, affecting 14,00,000 people according to official figures¹ and took its final form in 1924. The British government used to feel threatened by the nomadic communities which moved from one place to another and indulged in unconventional practices, like ear cleaning, snake charming, rope walking, juggler, monkey street performer, ironsmith etc.

The Greek word “nomad” means “to pasture”. In India they are also called as “Ghumantoos”, which indicated “an un-settled, un-disciplined, aimless, or vagrant” mobile communities.² Their nomadism was perceived as a challenge to Britishers. The Britishers had an anti – pathetic attitude towards the nomadic communities back home in the Great Britain, where they were treated as ‘habitual offenders’. This attitude and approach of Britishers towards the nomadic communities was reflected in the Indian context as well. In the words of Henry Mayhew, who was an influential mid – nineteenth century English author, on ‘the wanderers’:

“Whether is it that in the mere act of wandering, there is a greater determination of blood to the surface of the body, and consequently a less quantity sent to the brain, the muscles being thus nourished at the expense of the mind, I leave psychologists to say. But certainly, be the physical cause what it may, we must all allow that in each of the classes above mentioned, there is a greater development of the animal than of the intellectual or moral nature of man...”³

¹Meena Radhakrishna, *Dishonoured by History: ‘Criminal Tribes’ and British Colonial Policy 2* (Orient Blackswan, Delhi, 2015).

²Government of India, “Interim Report: National Commission for Denotified Nomadic and Semi-Nomadic Tribes” 10 (Ministry of Social Justice & Empowerment, 2016-17)

³Henry Mayhew, *London Labour and the London Poor: The Condition and Earnings of Those That Will Work, Cannot Work, and Will Not Work* 4 (C. Griffin, United Kingdom, 1864).



Further, the practice of nomadism meant that their movements could not be regulated by the British Indian government. It was thus important to sedentarize them so as to control them and tax them. Thus, the British government started the forced – settlement of these nomads. These so called ‘reformatory settlements’ were virtually like prisons for these nomads. Consequently, these nomadic communities lost their traditional occupation. Furthermore, the enactment of the Indian Forest Act of 1865, the Indian Forest Act of 1878 and the Indian Forest Act of 1927 established the monopoly of the Britishers over the Indian forests and its natural resources. Some of these lands were also given to the Zamindars and the forest - dwelling tribes were forced to cultivate on these lands. The forest areas became a major source of revenue for the Britishers. Consequently, the nomadic tribes were prevented from collecting forest produce, which was an important item of barter in their trade. They were not even allowed to collect bamboo and leaves, which they used for making the baskets, mats, brooms etc. Later, the Britishers’ control over the common pasture lands and the grazing areas, denied the fodder for the cattle of these nomadic tribes (like, Van Gujjars of Uttarakhand). All this cumulatively compelled some of these tribes to resort to other sources of income for their subsistence.

In order to further suppress the nomadic tribal groups involved in the ‘deviant acts’, as from the Britishers’ perspective (like *Nat*, *Sansi*, *Prerna*, *Singhvi*, *Gadia Lohar*, *Sapera*, *Madari* etc.), the nomadic tribes from the entire India were declared as ‘criminal tribes’ by the passing of the Criminal Tribes Act (1871) by the British India, which was initially applicable only to the North India. As a ‘civilizing mission’, the Britishers extended this Act to the whole of India by the enactment of Criminal Tribes Act (1911), which took its final form via an Amendment in 1924.

After the independence of India, the plight of the criminal tribes was considered by Mr. Pandit Jawaharlal Nehru’s government and consequently the Criminal Tribes Act, 1911 was repealed on 31st August, 1949 (celebrated as ‘Liberation Day’ or ‘Vimukta Jatis Diwas’). Nonetheless the systematic discrimination by the members of the mainstream society, along with a social stigma as ‘born criminals’ continued to haunt 198 De-Notified Tribes and 313 Nomadic tribes of India.⁴ As a result, Habitual Offenders (Control and Reform) Act was passed by the Parliament in 1952 as a Model Code and implemented

⁴Dr. Chandrakanthi L. and Ms. Veada Noopura V.T., “Socio-Legal Status of Tribal People under the Criminal Tribes Act, 1871: An Overview” Oct.-Dec. *Bharti Law Review* 116 (2018).



by few States (like Gujarat, NCT of Delhi, Karnataka, Tamil Nadu, etc.), which continued the criminalization of Denotified Tribes. Thus, the criminal tribes are now branded as ‘Denotified Tribes’ and are treated as ‘strangers’ in their own land.

In 2007, the ‘United Nations Anti – Discrimination Body Committee on the Elimination of Racial Discrimination’ noted that the Habitual Offenders Act(s) is a sophisticated replica of Criminal Tribes Act, 1911. In NCT of Delhi, Madras Restriction of Habitual Offenders Act, 1948 was extended via Notification of Ministry of Home Affairs, dated 22nd December, 1951.

One such extremely marginalized nomadic community is the ‘Gadia Lohar’ community, who are largely living in ‘informal settlements’ in various pockets of the Delhi for several decades. ‘Gadia Lohar Basti’ and ‘JJ Camp’ in Prem Nagar, Kotla, South Delhi are the settlements of Gadia Lohar community who migrated from Rajasthan to Delhi in 1965 and 1980, respectively. They were displaced from their settlement near the Tyagaraj Stadium in 2009 to make way for the Commonwealth Games. Their settlement was demolished without any prior notice, leaving the community without homes, livelihoods, or proper rehabilitation, which forced them to relocate to a temporary settlement in Prem Nagar, Kotla. The community continues to face poor living conditions, inadequate sanitation and medical services. Along with many of them losing their traditional source of income and children dropping out of schools, they face the stigmatization of being the ‘criminal tribes’ by the so-called mainstream society.

Research Objectives

The ‘Gadia Lohar’ Denotified community settled in Prem Nagar, Kotla, South Delhi, has a history of displacement and struggle. This research will analyze the effect of their displacement in 2009 to widen the road and to construct an underpass to connect the Tyagaraj Stadium with the Jawaharlal Nehru Stadium and violation of their human rights in the light of Madras Restriction of Habitual Offenders Act, 1948 (as applicable in Union Territory of Delhi). In the end, relevant suggestions and recommendations will be provided for a better operational framework for the betterment of Denotified Tribes in the light of the data collected and analyzed.

Thus, the researcher will delve into the following questions:

1. To study the impact of eviction and displacement of the Gadia Lohar community in the selected region of Delhi.



2. To analyze the impact of the Madras Restriction of Habitual Offenders Act, 1948 on the Gadia Lohar community of the selected region of Delhi.

Research Methodology

Utilizing the Doctrinal Method: There can be different methods to approach a research problem, namely, doctrinal, empirical or an amalgamation of both. The present research shall be using Doctrinal method of legal research as well as some *case narratives* of Gadia Lohar community of the selected region of Delhi. The researcher shall be relying on the primary as well as secondary sources for the present research.

The researcher shall be using various primary resources entailing the relevant Indian legislations, governmental reports, judicial interpretations and international conventions available at her disposal. The secondary sources shall include data collected from National Archives of India and Ministry of Social Justice and Empowerment, books, articles published in various prestigious journals, newspapers and websites.

Suggestions for a prudent legal reform in the Indian context - Based on the study, the researcher shall identify the pitfalls of the Indian legal and social system leading to the victimization of the Denotified Tribes and shall suggest the measures for safeguarding the future of Denotified Tribes.

Limitation of the Study

The research shall be having the following limitations:

1. The research shall be limited to the Gadia Lohar Denotified Tribe only, and shall not include any other Nomadic and Semi – Nomadic Tribes of NCT of Delhi.
2. The study shall be limited to the status of Denotified Tribes in Prem Nagar, Kotla of South Delhi and thus, shall not be representing the status of the Denotified Tribes of the whole of India.
3. The population count of Denotified Tribes of NCT of Delhi is under the process by the NITI Aayog. So presently no survey reports could provide the clear data and details of the Denotified Tribes living in the different pockets of NCT of Delhi.

Mapping the origin of ‘Gadia Lohar’ community in Prem Nagar, Kotla

The nomadic community, Gadia Lohar, originated from Chittorgarh of Rajasthan.



They are “Lohar” (means ironsmith) by profession and for subsistence used to move from one place to another on their “Gadia” (means carts) for selling their manufactured iron utensils and other tools.

The community members were ironsmiths of the army of Maharana Pratap of Mewar. When Mewar was taken over by the Mughals, then they took the oath that they will lead a nomadic life and will return their homeland only when Maharana’s power is restored.⁵ Since then, Gadia is their mobile home and stay temporarily on the outskirts of the cities or villages to sell their goods. The community is born with the following “self – imposed taboos:⁶

1. Not to return to Chittorgarh Fort.
2. Not to live in permanently settled homes.
3. Not to light a candle at night.
4. Not to keep their cots in their carts.
5. Not to keep a rope for drawing water from the well.”

After the passing of the Criminal Tribes Act, 1871 by the British India, the community was forced to settle at one place. They are now settled in NCT of Delhi, Haryana, Punjab, Madhya Pradesh, Maharashtra, Gujarat and Uttar Pradesh.

In the NCT of Delhi, the Gadia Lohar community is settled in over 90 ‘informal *bastis*’ in various parts of Delhi since last several decades.⁷ Most of these settlements are situated near roadsides for trade purposes. Due to this, they live under the constant threat of forced eviction along with the absence of the basic amenities.

The settlement of Prem Nagar, Kotla, South Delhi came into existence 60 years ago and is the selected area of research. The Gadia Lohar community living here were the migrants of Rajasthan in 1965. India was hosting the Commonwealth Games of 2010 in Delhi and as its part of preparation an underpass was required to be build joining the Tyagaraj Stadium with the Jawaharlal Nehru Stadium. For this purpose, the bulldozers were used to demolish the Gadia Lohars’ settlement to make the way for the underpass on 12th January, 2009. Before the demolition, neither prior notice was given

⁵Government of India, “Interim Report: National Commission for Denotified Nomadic and Semi – Nomadic Tribes” 83 (Ministry of Social Justice & Empowerment, 2016-17).

⁶Supra note 5.

⁷Housing and Land Rights Network, “Mapping the Marginalized: Delhi’s Gadia Lohar Community” 2 (2019).

to the resident - victims nor any compensation or rehabilitation was offered for their displacement.⁸

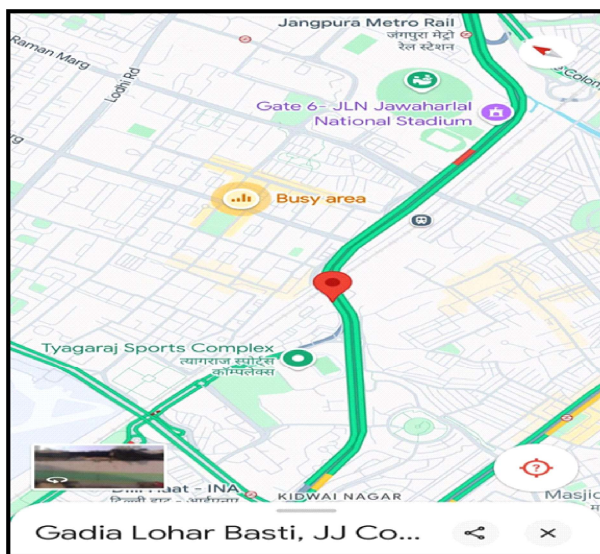
The community is still looked upon as a ‘stranger’ in their own land. Thomas Carlyle wrote about the Denotified Tribes that:

“The Nomad has his very house set on wheels; the Nomad, and in a still higher degree the Ape, are all for ‘liberty’; the privilege to flit continually is indispensable to them... The civilized men lives not in wheeled houses. He builds stone castles, plants lands, makes life long marriage – contracts; - has long – dated hundred – fold possessions, not to be valued in the money market; has pedigrees, libraries, law – codes; has memories and hopes, even for this Earth, that reach over thousands of years.”⁹

Case Narratives of ‘Gadia Lohar’ of the Selected Area

The researcher visited the Gadia Lohar Basti in Prem Nagar, Kotla of Delhi during July – September, 2024. The researcher has taken following ethical considerations:

1. The data is collected after Free, Prior and Informed consent (that is, FPIC Principles of research) of the stakeholders.
2. The names of the stakeholders used in this paper are kept anonymous to protect their identity.



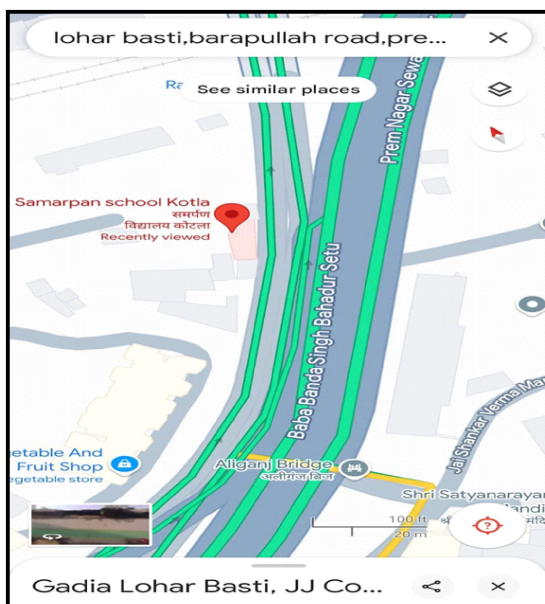
⁸Supra note 7 at 11.

⁹Thomas Carlyle, Past and Present 341-342 (C.C. Little and J. Brown, United Kingdom, 1843).



Road connecting JLN Stadium and Tyagaraj Stadium though *Gadia Lohar Basti* ()

The Gadia Lohar settlement was divided into two parts by Baba Banda Singh Bahadur Setu road. An underpass was constructed to connect Jawaharlal National Stadium to Tyagaraj Sports Complex in 2009 for Commonwealth Games (2010).



The *Gadia Lohar* Settlements () on both sides of the road.

On the left side of the road is the '*Lohar Basti*' with the settlement of 18 Gadia Lohar families; while on the other right side of the road is a temporary settlement of around 250 Gadia Lohar families residing beside the *Kushaknalla* (formed from a very small tributary of Yamuna river).

Case Narrative I: The researchers' first stakeholder is a 14 years old girl, named *Riya*, who belongs to the *Gadia Lohar* Denotified Tribe, living in *Gadia Lohar Basti*, situated on the left side of the road. She is studying in Class VII. She took the researcher to visit her house. She lives with her father, mother and two elder brothers. Her mother told the researcher that they are living in Delhi since 1960s. The parents of *Riya* are uneducated. Her brothers have completed their schooling, but they are not interested in pursuing higher education. They have joined their traditional business of ironsmith.

Riya aspires to become a doctor. An NGO named 'Samarpan Foundation' is helping the children of the community to study by providing tuition to school

students for free of cost. All the family members hold an Aadhar Card. They live in the *pucca* house on the left side of the road since 1960s. They have electricity, water and *Sulabh Sauchalaya* (by Delhi government) facilities.

The source of subsistence of Riya's family is the making and selling of iron tools and utensils. They put up the shop stalls to sell their products on the roadside of their settlement in the evening from 3:00 pm to 8:00 pm. The selling of their hand – made goods has become a challenge against the machine - made iron goods.

Case Narrative II: The second stakeholder is a woman, named *Suman*, who is of 40 years old. She lives with her one daughter, one son and mother-in-law. Her husband passed away due to heart attack in 2011. With him they lost their traditional business. Suman now works as a house – help in the near by Government colonies at the rate of Rupees 1200 per month in four households. Her son works as a cab driver and her daughter has completed 12th class. She wants her daughter to pursue BA from Delhi University. They live in the *pucca* house on the left side of the road since 1965.

Case Narrative III: The third stakeholder was a man, named *Mithiles*, aged 35 years, residing on the right side of the road. The researcher met him on his roadside small scrap shop on a wheeled – cart. He earns approximately Rupees 200 a day. He lives with his wife and two sons near the *Kushknalla*. He told the researcher that they were displaced during the construction of the road in 2009. Their homes were demolished by the bulldozers overnight without any prior notice given to them. They do not work as ironsmiths anymore. They live along with other approximately 250 families besides the *nallah* in *kuccha* homes without any electricity, water and lavatory facilities.

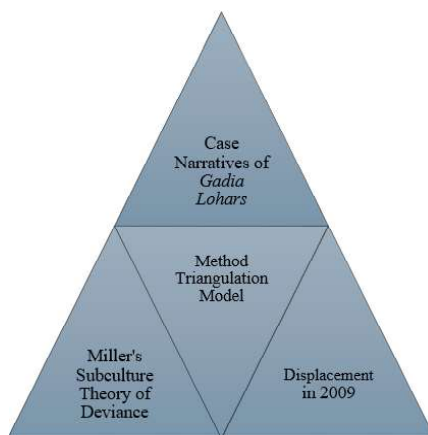


Gadia Lohar children outside the Samarpan Foundation tuition.



Perusal of the Data Collected

The researcher has applied the ‘Method Triangulation Model’, which would be an assimilation of the three research methods to establish the inter-relationship among them. The research will analyze the case narratives of *Gadia* Lohar Denotified tribes of Prem Nagar (Kotla), the effect of their displacement in 2009 and the application of **Walter B. Miller’s Subculture Theory of Deviance**.



Method Triangulation Model.

The case narratives collected by the researcher suggests that the traditional practices of *Gadia* Lohar Denotified Tribes are not merely their occupation, but also a socio-religious practice for some of them. The myth that “no matter how much the government tries to settle these communities down by giving them lands or houses, they still prefer nomadic lifestyle.” – does not hold true now. They lack the livelihood security; but their new generation is oriented towards education. Still some reports suggest that they are involved in petty offences, like theft, also, but when the researcher asked them about this, they denied the allegations outrightly citing that they are good citizens now and are trying to be the part of so - called mainstream society by gaining education.¹⁰ They also told the researcher that some of them also holds the Other Backward Classes (OBC) Caste Certificate in NCT of Delhi.¹¹

The researcher through its field work observed that this community prefers to live in small groups on the roadsides. They also keep themselves

¹⁰Sarthak, “Socio – Economic Status of Women of Denotified & Nomadic Communities in Delhi” 19 (submitted to National Commission for Women, 2016).

¹¹Supra note 7 at 4.



isolated from other communities. These settlements have not been recognized by the Government of Delhi.

For the beautification of the city during the Commonwealth Games, in 2009 the community was evicted and dispossessed. The matter was taken to the court. In the Writ Petition of Sudama Singh & Others v. Government of Delhi & Anr.¹², the Hon'ble Court on 11th February, 2010 upheld the Gadia Lohars' right to adequate housing. The Delhi Government cannot demolish the settlements on the ground of 'right to way' without providing proper rehabilitation to the victims. The demolition was against the 2000 Scheme framed by Delhi Government for rehabilitation of the slum dwellers. However, till 2024 they have not been rehabilitated.

In the recent development, the left side of the road settlement have been decided by the Delhi Government to be relocated on the outskirts of NCT of Delhi in Nangloi. The residents of *Lohar Basti* claims that the living conditions in Nangloi site is very poor. The matter is pending before the court.

According to the **Subculture Theory of Deviance by Walter B. Miller**, delinquency is the result of lower - class subculture. The 'lower – class' has some 'distinctive cultural system' which includes 'three focal concerns' – 'toughness', 'smartness' and 'excitement'.¹³ In the words of Miller, "The 'smartness' involves the 'capacity to outsmart' and expressed in repertoire of the hustler and the petty thief. Low – skilled workers require the ability to endure repetitive routine and tolerate culture of poverty."¹⁴ The outside of works helps to deal with the dissatisfaction produced by the traditional work and therefore, the poor prefer to live in a world of their own.¹⁵ Thus, the 'cultural deprivation'¹⁶ leads to an apparent kind of malice, an enjoyment of the discomfiture of others.

In the light of the case narratives collected and the observations made by the researcher during her field work, most of the members of *Gadia Lohar* Denotified Tribes does not have adequate educational qualification as well

¹²2010 SCC OnLine Del 612.

¹³Micheal Haralambos and Robin Heald, *Sociology: Themes and Perspectives* 500 (Oxford University Press, New Delhi, 51st impression, 2017).

¹⁴Supra note 13 at 500-501.

¹⁵Supra note 13 at 187.

¹⁶ 'Theory of cultural deprivation' is where a person of lower class has inferior norms, values, skills and knowledge, as compared to middle-class people, which increases the gap between the two classes.



as not any vocational training. Further, factory - made iron tools and utensils are posing a substantial threat to the traditional occupation of Lohars and so, they have to explore other sources of livelihood. Consequently, some of them are working as household helpers, or as labourers at construction sites, or selling earthen pots and utensils. The observation made by researcher also shows that the most of the community members living on left side of the road have washing machines, refrigerators, water coolers, cooking gas and tiled flooring. They are also suspected by police officials in the commission of petty offences.

On the other hand, the displaced members living on the right of the road face psychological impact, poor sanitation, lack of medical facilities and basic amenities. They suffer from diseases, like malaria, typhoid and dengue, more often.

So, the Denotified Tribes of the area are double jeopardized, *firstly* by the lack of education; and *secondly* by the stigmatization of the society for belonging to the Denotified Tribes.

Suggestions

The above study strongly emphasises on the need of rehabilitation of the community living in ‘informal settlements’ since several decades. For this purpose, the Government of Delhi shall survey the area and implement the Chief Minister Awas Yojna – “*Jahan Jhuggi, Vahin Makkan*”. Such rehabilitation shall be accompanied with the space for market – area for Gadia Lohars to sell their manufactured goods. Their products should be promoted under “Vocal for Local” Initiative (started by NITI Aayog).

The basic amenities, like electricity, water, lavatory and medical facilities, must be ensured. The compensation should be provided for the loss due to forced eviction and displacement to the victims. It is also the need of the hour that a massive awareness programme must be launched to sensitize both the police and the public that these Tribes are ‘not criminal by birth’.

Conclusion

The *Gadia Lohar* Denotified Tribe is one of the most vulnerable community and are treated as ‘strangers’ in their own land. Their processes of marginalization and dispossession have a long history. In a race to rise as a modern nation, India tried to wipe out its embarrassing colonial pasts, the groups or communities who does not fit into the notion of an ‘ideal citizen’ are subjected to historical stigmatization.



The ‘right to adequate housing’ guaranteed under Article 25 of the Universal Declaration of Human Rights, 1948 and Article 21 of the Constitution of India (1950) are clearly violated in the present case. Apart from this, despite the Delhi High Court’s decision¹⁷ the victims of the community have neither been rehabilitated nor compensated. The research shows the sad reality of Delhi’s ‘Urbanization of Poverty’. In their struggle for recognition, identity crisis and positive rehabilitation, there also lies a strong demand for equal citizenship rights.

¹⁷Sudama Singh & Others v. Government of Delhi & Anr., 2010 SCC OnLine Del 612.

IMPACT ASSESSMENT OF CLIMATE AGREEMENTS ON HUMAN RIGHTS



Dr. Prabjeet Sandhu*
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Abstract

This study examines the influence of international climate agreements on humanity, particularly focusing on their effects on vulnerable communities. It questions the ability of global human rights frameworks to effectively address challenges linked to climate change, especially when these frameworks emphasize protecting individual and governmental freedoms. The paper explores the relationship between environmental regulations and human rights law, with a special focus on the mechanisms involved in climate policy decision-making. While recognizing the role of treaties in promoting environmental justice, the study argues that these agreements often prioritize individual rights over broader national interests. By analysing legal practices in countries such as the USA, Germany, the UK, and Canada, the research highlights the complexities of balancing ecological commitments with legal responsibilities. The paper stresses the critical need for integrated strategies that support both climate adaptation and human rights, advocating for stronger frameworks to address the intersecting vulnerabilities of environmental and social systems.

Keywords: *Climate Change, Human Rights, Climate Agreements, “United Nations Framework Convention on Climate Change” (UNFCCC), Paris Agreement*

INTRODUCTION

The ongoing climate crisis poses a significant ethical challenge in the 21st century. It negatively affects vulnerable communities in both emerging and advanced countries. Its environmental and health consequences threaten fundamental human rights and social equity, including safety, housing, food,

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healthcare, and essential services. Climate change poses a significant threat to the rights outlined in the “International Covenant on Economic, Social, and Cultural Rights” (ICESCR) i.e. Life, culture, religion, language, and socio-economic rights.¹

Climate change jeopardises human rights, especially in developing nations, notably among those residing in rural regions. National governments are obligated to advocate for and safeguard these human rights.² The “United Nations Framework Convention on Climate Change” (UNFCCC) promotes global collaboration to stabilise atmospheric levels of “Green House Gases” (GHGs).³ It underscores the need to uphold human rights in efforts connected to climate change. Human rights considerations must be included in the formulation, execution, and supervision of climate policies, institutions, and processes, according to the UNFCCC.⁴

The following are examples of the negative environmental impacts caused by climate change:⁵

- Temperature and/or heat waves.
- Intense precipitation occurrences.
- Droughts.
- Severe tropical cyclone activity.
- Oceanic elevation.

Alterations to ecosystems, including biodiversity loss, are dire consequences of climate change, along with an increase in airborne chemical pollutants and aeroallergens and a reduction in the size of terrestrial glaciers. Both past and projected changes, as well as the human-caused factors contributing to them, have been thoroughly evaluated by the “Intergovernmental Panel on Climate Change” (IPCC). Climate change and its human-caused com-

¹Anthony J. Langlois (ed.), *Encyclopaedia of International Relations and Global Politics* 418-420 (Routledge, Taylor and Francis, 2005).

²Derek Bell, “Climate Change and Human Rights” 4(3) WIRCC 159-170 (2013).

³Thomas Hickmann, et.al., “The United Nations Framework Convention on Climate Change Secretariat as an Orchestrator in Global Climate Policymaking” 87 *IRAS* 21-38 (2021).

⁴Jane A. Leggett, “The United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement: A Summary” 2 *UNFCC* (2020).

⁵Susannah Willcox, “A Rising Tide: The Implications of Climate Change Inundation for Human Rights and State Sovereignty” 9(1) *EHRR* 1-19 (2012).

⁶Richard P. Allan, et.al., *Intergovernmental Panel on Climate Change (IPCC): Summary for Policymakers* 3-32 (Cambridge University Press, 2023).



ponents are evaluated by the IPCC, an agency of the UN.⁶ Climate change adversely affects health, resulting in heat-related illnesses, vector-borne diseases, malnutrition, respiratory issues such as asthma and allergies, water and foodborne infections, and mental health disorders.

THE RELEVANCE OF HUMAN RIGHTS

A growing number of nations assert the need to diminish greenhouse gas emissions in accordance with international human rights treaties. The perspective suggests that safeguarding human rights within a nation's territorial jurisdiction is intrinsically linked to combating climate change.⁷ States insist on cooperation; however, it is rational for each state, at the individual level, to avoid lower emissions. Litigants often do not possess the legal authority to compel states to fulfil their obligations to combat climate change as outlined in international laws and climate treaties.⁸ International law-based climate litigation frequently references human rights treaties, presenting claims about mitigation responsibilities to national courts, the "European Court of Human Rights" (ECHR), and two treaty organisations.⁹

A. Climate Change Mitigation and Human Rights

Climate change is severely affecting various aspects of human rights, economic access, political rights, personal freedoms, cultural protections, and communal environmental rights because of these consequences, fundamental human rights cannot be fully exercised. Governments have to defend these rights by designing and implementing effective plans to alleviate climate change and adapt to its challenges. Climate change mitigation involves early warning systems and urbanization restrictions in coastal regions. Global collaboration is needed for emissions reduction. Human rights may be affected by the implementation of actions causing breaches, the justification of rights restrictions, and the reallocation of resources.¹⁰ The IPCC expects global consumption to decrease by 1.7 per cent by 2030 and 4.8 per cent by 2100, despite industrialised countries pledging to collectively contribute \$100 billion annually

⁷Ibid

⁸James Hansen, et.al., "Perception of Climate Change" 109(37) Proceedings of the National Academy of Sciences 2415-E2423 (2012).

⁹Corina Heri, "Climate Change before the European Court of Human Rights: Capturing Risk, Ill-Treatment, and Vulnerability" 33(3) *EJIL* 925-951 (2022).

¹⁰William Nordhaus, "Climate Change: The Ultimate Challenge for Economics" 109(6) *AER* 1991-2014 (2019).



towards climate financing in 2020.¹¹ Human rights agreements often emphasise the short-term expenses incurred by a state in addressing damage, rather than the enduring advantages that arise from such actions for people, communities, and ecosystems.¹²

B. Benefits of Human Rights Law from a Strategic Perspective

Human rights treaties are essential for nations to address climate change since they are integral to the UNFCCC and the “Paris Agreement, 2015”. States must communicate their “Nationally Determined Contributions” (NDCs) and implement appropriate actions to fulfil their goals.¹³ The Paris Agreement imposes a universal responsibility on each party to develop and execute strategies for climate change mitigation. Nations are obligated to act responsibly to safeguard the interests of other countries, particularly by preventing harm to the environment across borders. The prospect of human rights treaties for climate change mitigation stems from the legal redress they offer through the treaty’s legal avenues. The UNFCCC and the Paris Agreement face significant challenges due to the absence of strong mechanisms to ensure adherence to their commitments.¹⁴ Additionally, international mechanisms for resolving disputes are optional, and nations are generally hesitant to provoke tensions with one another. This reluctance undermines the feasibility of pursuing arbitration or other binding resolutions regarding overarching mitigation responsibilities.¹⁵ The lack of identified victims in human rights treaties may impede individual or group petitions and complaints to regional human rights tribunals. National legal frameworks establish their criteria for standing, potentially facilitating the enforcement of human rights treaties even where identified victims are lacking.¹⁶

¹¹Jim Skea, Priyadarshi Shukla, et al., “Intergovernmental Panel on Climate Change: Transparency and Integrated Assessment Modeling” 12(5) *WIRCC* 727 (2021).

¹²Sumudu Atapattu, *Human Rights Approaches to Climate Change: Challenges and Opportunities* (Routledge, 2015).

¹³Jutta Brunnée, “The Legality of Downgrading Nationally Determined Contributions under the Paris Agreement: Lessons from the US Disengagement” 29(3) *JEL* 537-551 (2017).

¹⁴Mary Kirabui, “The Efficacy of the UNFCCC in Promoting Environmental Security in Africa: A Case of the Paris Agreement in Kenya” PhD diss., University of Nairobi (2020).

¹⁵Benoit Mayer, “Progression Requirements Applicable to State Action on Climate Change Mitigation under Nationally Determined Contributions” 23(3) *IEAPLE* 293-309 (2023).

¹⁶Tracy Bach, “Human Rights in a Climate Changed World: The Impact of COP21, Nationally Determined Contributions, and National Courts” 40 *Vt. L. Rev.* 561 (2015).



IMPLIED MITIGATION OBLIGATIONS

Human rights treaties often do not provide substantial enhancements in the guard of human rights inside a state's territory or authority. The Netherlands' 2020 emission decrease would yield negligible variations in GHG concentration, resulting in limited substantive mitigating effects.¹⁷ While incremental mitigation initiatives could be beneficial if they address the most significant threats to human rights in the 21st century, they often remain limited to their jurisdiction or region, a stark contrast to the global implications of climate change. This issue has been a significant concern in UNFCCC discussions, as each nation prioritizes the protection of its populace above the pursuit of collective interests when addressing climate change.¹⁸ Although climate change mitigation is crucial for safeguarding public health, conserving the environment, ensuring the well-being of future generations, and human rights frameworks predominantly focus on individual rights, overlooking this global challenge. Merely addressing these factors fails to tackle the core issue of territorial limitations. Such agreements continue to prioritize individualistic approaches to human prosperity, human-centred exploitation of natural resources, and a geographically confined understanding of state responsibilities.¹⁹

Human rights treaties serve as a foundation for the rationale behind people's collaboration in addressing climate change, according to three primary arguments. The first argument asserts that human rights treaties entangle climate change initiatives with extraterritorial duties. Secondly, the states must work together to prevent climate change with "collective responsibilities" to safeguard human rights. Thirdly, states are primarily responsible for cooperating worldwide in protecting human rights and mitigating climate change.²⁰

A. Extraterritorial Obligations

One possible outcome of a state's failure to adequately handle climate change is the extraterritorial implementation of human rights accords, according to academic scholars. Certain experts propose broadening the geographical extent

¹⁷P. G. Ruysenaars, L. van der Net, et al., "Greenhouse Gas Emissions in the Netherlands 1990–2020" (2022).

¹⁸Jutta Brunnée, "The UNFCCC as a Negotiation Forum: Towards Common but More Differentiated Responsibilities" 116-134 (Routledge, 2018).

¹⁹Daniel Bodansky, "Introduction: Climate Change and Human Rights: Unpacking the Issues" 38 *GJICL* 511 (2009).

²⁰*Ibid*



of certain treaty commitments, especially with the right to life, to include circumstances when a State directly and reasonably foreseeably wields “power” over an individual’s rights.²¹ IACtHR, 2017 stated that “*persons impacted by transboundary environmental damage may be considered within the effective control of the State of origin*”.²²

B. Collective Obligations

Vindicating climate change is a human rights requirement that necessitates that governments prioritize their national interests while fulfilling their collective responsibilities as members of the international community or treaty parties. Given that only individual legal entities may face accountability for their responsibilities, this notion is unlikely to contradict itself. Climate treaties provide shared goals and principles for mitigating climate change, although they do not enforce joint or community responsibilities. Human rights treaties may imply that nation’s most responsible for climate change may effectively manage catastrophic consequences; nevertheless, it is improbable that any one state has such power. “Article 47 of the Articles on State Responsibility” stipulates that many states may be collectively accountable for a singular violation of international law. According to the International Law Commission, this provision applies only “when several states collectively contribute to conduct that each of them recognizes as a violation of international law.”²³

C. State Cooperation and their Responsibilities

Knox stated that “Article 55 of the UN Charter and the Preamble to the UNFCCC” mandates all nations to collaborate in tackling global issues.²⁴ This requirement creates a mechanism for evaluating duties concerning the protection of human rights in the context of climate change. But it may not be

²¹Chiara Tea Antoniazzi, “Extraterritorial Human Rights Obligations in the Area of Climate Change: Why the European Union Should Take Them Seriously” 2024(2) *EPJLI* 479-511 (2024).

²²Maria Antonia Tigre, “The 2017 Inter-American Court’s Advisory Opinion: Changing the Paradigm for International Environmental Law in the Anthropocene” 12(1) *JHRE* 24-50 (2021).

²³James Crawford, “Articles on responsibility of states for internationally wrongful acts” *UNALIL* (2012).

²⁴John H. Knox “Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment, Report, UN Doc. A/HRC/31/52, on the human rights obligations relating to climate change” (Feb. 1, 2016)



too easy to classify this duty as one that is endorsed by human rights. Article 55 recognises the significance of state collaboration in upholding human rights but does not specifically impose a responsibility to work together to safeguard human rights. Therefore, it can be inferred that climate change mitigation requires partnership under the UN Charter.²⁵

A state must ensure adequate protection of its citizens' rights to be considered a human rights protector. International cooperation can be a beneficial strategy for a state to enhance international outcomes and realize human rights for its citizens. Human rights treaty bodies may see this as an incentive for nations to work together for their benefit, which they strongly disagree with since it suggests governments may be deceitful.²⁶ The duty to interpret and execute treaties in honest faith mandates that states operate with integrity and avoid exploiting others unfairly. This commitment imposes fewer demands on states compared to basic international law requirements, which necessitate that states prioritize international problems above their national interests in a spirit of global collaboration. To fulfil this self-serving duty of collaboration, a state must engage constructively in international climate change mitigation talks and endeavour to restrict or decrease greenhouse gas emissions within its jurisdiction.²⁷

Implied Mitigation Obligations

- A. Systemic Integration**—Treaty interpretation concepts, particularly the idea of systemic integration, are followed in the interpretation of human rights treaties. According to this theory, precedents from various bodies of international law should be considered when interpreting a particular rule of law. “Article 31(3)(c) of the Vienna Convention”²⁸ emphasizes that a rule should be considered relevant if it applies to the relations between the parties. Relevance is a crucial principle in human rights interpretation, often used by international

²⁵Benoit Mayer, “Climate Change Mitigation as an Obligation Under Human Rights Treaties?” 115(3) *AJIL* 409–451 (2021).

²⁶Benoit Mayer, *International Law Obligations on Climate Change Mitigation* (Oxford University Press, 2022).

²⁷Walter Kälin & Jörg Künzli, *The Law of International Human Rights Protection* 87 (2nd ed. 2019).

²⁸D. Rosentreter, *Article 31(3)(c) of the Vienna Convention on the Law of Treaties and the Principle of Systemic Integration in International Investment Law and Arbitration*: (2015).



bodies and regional courts. They interpret human rights instruments alongside other treaties, international law, and customary practices. However, it's crucial to distinguish between interpretations prioritizing mitigation over other principles.

B. Incorporation Theory—It holds that where a State is required to perform a mitigation commitment arising out of a human rights treaty, the State is obliged to perform all the general mitigation obligations concurrently as integral parts of the overall obligation. This incorporation idea has not been argued and proven systematically but rather accepted tacitly. When looked at more carefully, it is revealed that it is in contradiction with the rules pertaining to the interpretation of treaties.²⁹

i. Tacit Acceptance—As part of its international legal obligations to protect human rights and the environment, a state may be obligated to take measures to reduce the effects of climate change by a treaty protecting human rights. Ministries of Foreign Affairs asserts that human rights are a fundamental component of governmental commitments that must be upheld in relation to climate change. In its Urgenda decision, the highest court in the Netherlands used the “Vienna Rules” principles on “systemic integration” and the “common ground” approach to human rights law in Europe.³⁰ Treaty organizations mostly adhere to this premise, urging nations to adopt more ambitious obligations for climate change mitigation than those already established under the regime. However, it can be challenging to argue that a policy aligns with the UN climate framework while simultaneously violating the established human rights obligations of states. Certain academics, like Boyle, Nollkaemper, and Burger, criticize the Supreme Court’s approach to Urgenda for conflating law with non-law; however, they do not examine the underlying idea.³¹

ii. Refutation—The incorporation theory is a flawed interpretation method that overlooks the intent of a human rights treaty by focusing on vague obligations. This approach allows unrelated

²⁹Thomas Allmendinger, “The Refutation of the Climate Greenhouse Theory and a Proposal for a Hopeful Alternative” 1(2) *EPCC* 123 (2017).

³⁰Dan Ziebarth, “Climate Law and Human Rights: How Do Courts Treat Rights in Their Decision?” 57 *UICL Rev.* 203 (2023).

³¹Nazibrola Chinchaladze, “Rules on Decarbonization and Human Rights Law” 8(1) *Dialogo* 169-175 (2021).



policies to infiltrate human rights frameworks, diverting focus from their core mission. The inclusion argument shifts focus from safeguarding fundamental rights to addressing global issues like climate change. Treaty interpretation should be based on the agreement's wording and individual case circumstances. Cases like *Urgenda* demonstrate this.³² The level of due diligence required for protecting an interest varies based on its significance. The incorporation doctrine is problematic since it enables courts to circumvent regulations on jurisdiction and admissibility. Generally, international courts and tribunals recognize the independent existence of each rule, despite their convergence or similar wording. Consequently, considering broad mitigation requirements while interpreting human rights treaties does not warrant their inclusion in such accords.³³

C. An Alternative Theory: Windows of Applicability—Human rights treaties impose duties for climate change mitigation; however, their interpretation depends on the treaty's words, context, and purpose. We understand these requirements within the framework of systemic integration, without compromising the overarching mitigation obligations.³⁴ Human rights accords often recognize international cooperation to combat climate change, promoting human well-being and safeguarding future generations' interests. However, from the agreements at the climate level or through customary law, overriding requirements on mitigation consider various benefits such as sustainable development, food security, the integrity of ecosystems, and equity between the generations. Human rights treaties acknowledge the limitations of reducing greenhouse gas emissions and provide limited tools to achieve this goal, aligning with international law's emphasis on preserving human and country rights.³⁵

³²*Urgenda Foundation v. State of the Netherlands* [2015] HAZA C/09/00456689.

³³Adamantia Rachovitsa, "The Principle of Systemic Integration in Human Rights Law" 66 *ICLQ*, 557 (2017).

³⁴"Art. 31(3)(b) Vienna Convention on the Law of Treaties, May 23, 1969, 1155 UNTS 331" (VCLT).

³⁵Benoit Mayer, "Article 4: Mitigation, in *The Paris Agreement on Climate Change* "109, 124-128 (Geert van Calster & Leonie Reins eds., 2021).



“UN GUIDING PRINCIPLES ON ECONOMIC AND HUMAN RIGHTS” (UNGPS) AND CLIMATE CHANGE

Organisations are legally required to act to control certain harms arising from climate change on human rights because human rights are concerned with the matter. The OHCHR of the UN reiterates that the UNGPs present unprecedented global guidance on how to prevent and address Business and human rights especially impacts resulting from climate change.³⁶ Determining the responsibility for greenhouse gas emissions is a challenging task. Although the incorporation of climate change factors for adaptation and mitigation into human resource development has been approved, it is improbable that a firm could be deemed liable for a general “climate change harm.” Recent advancements in climate-attribution research have enhanced the quest for scientifically precise attribution.³⁷

The relationship between climate change to the UNGPs is more than just theoretical; according to some sources, the “Human Rights Due Diligence” (HRD) framework of the UNGPs will include climate change components to a considerable degree. In 2021, the OHCHR released an information sheet elucidating that, according to the UNGPs, enterprises are obligated to uphold human rights, which encompasses not only the avoidance of causing or contributing to harm but also the proactive prevention or mitigation of greenhouse gas emissions and deforestation.³⁸ Social and environmental impact assessment must always be part of the human resource development process, while businesses have the responsibility to support climate adaptation measures. The HRD stakeholder engagement process is the second practical link between climate change and the UNGPs; corporate climate change initiatives should incorporate the information resulting from this process.³⁹

We posit climate due diligence as an intrinsic aspect of HRD, understanding the business obligation to uphold human rights under Pillar II of the UNGPs in conjunction with other legal frameworks, including environmental

³⁶Ian Higham, et al., “Submission to the UN Consultation on Corporate Accountability in the Context of Human Rights and Climate Change” (2024).

³⁷Maria Ivanova, UN Environment Programme 1811-1818 (Springer International Publishing, 2023).

³⁸Liliana Lizarazo-Rodriguez, “The UNGPs on Business and Human Rights and the Greening of Human Rights Litigation: Fishing in Fragmented Waters?” 13(19) *Sustainability*, 10516 (2021).

³⁹Justine Bell-James, “Queensland’s human rights act: A new frontier for Australian climate change litigation?” USNWLJ 3-38 (2020).



and climate legislation.⁴⁰⁴⁰ Akinwumi Ogunranti, “Localizing the UNGPs—An Afrocentric Approach to Interpreting Pillar II” 8(1) *BHRJ* 66-84 (2023).

HRD and climate due diligence are practically analogous, concentrating on risks and repercussions to people or the environment rather than hazards to corporate operations. Both forms of due diligence use a proactive strategy to mitigate risks and damage, with the UNGPS cited as a reference for the development of local legislation.

International Climate Litigation Trends

In recent years, various judicial cases around Europe have significantly relied on “*Articles 2 and 8 of the ECHR*” to contest domestic policies and governmental acts, especially concerning climate change mitigation. Cases like these often evaluate how well national programs comply with human rights obligations or how well they meet the goals outlined in the Paris Agreement. While several cases are still not concluded, significant legal precedents have been established by courts in countries such as Germany and Belgium. Judicial bodies in these two countries have determined that insufficient climate measures by governments violate responsibilities under the ECHR and infringe upon the state’s responsibility to safeguard human rights. These verdicts underscore that governments that inadequately address climate hazards are derelict in their duty to protect persons from the detrimental impacts of climate change.

In “*Neubauer et al. v. Germany*,”⁴¹ the court annulled sections of the “Federal Climate Change Act of 2021, also known as the Bundesklimaschutzgesetz (KSG)”, finding it inconsistent with constitutional safeguards for life and health. The principal concern was the legislation’s inadequacy in establishing adequate emissions reduction objectives beyond 2030, which the court said imposed an inequitable burden on future generations. The court determined that the “shifting” of climatic responsibilities to future generations constituted a breach of basic freedoms. The court based its ruling on the state’s duty to safeguard basic rights and to proactively mitigate anticipated and substantial dangers associated with climate change. Thus, the legislature was mandated to establish more explicit and aggressive carbon reduction objectives for the post-2030 timeframe. In 2022, Germany implemented updated climate laws requiring a 65% decrease in GHG emissions compared to 1990 levels by 2030.⁴²

⁴⁰Akinwumi Ogunranti, "Localizing the UNGPs-An Afrocentric Approach to Interpreting Pillar II" 8(1) *BHRJ* 66-84 (2023).

⁴¹29 April 2021 (Germany).

⁴²Di Wang, “An advanced review of climate change mitigation policies in Germany, France, and the Netherlands” 18(10) *Environmental Research Letters* 103001 (2023).



Notwithstanding this advancement, more problems arose. In “Steinmetz et al. v. Germany (2022)”⁴³, the Court encountered claims that the amended goals were inadequate. The plaintiffs said that the revised climate legislation surpassed Germany’s carbon budget and did not guarantee cooperation among federal states, therefore perpetuating violations of basic rights. This case, although yet unresolved, underscores the ongoing examination of Germany’s climate obligations.

Furthermore, a number of actions against subnational governments challenged their responsibility in setting enforceable mitigation objectives. In 2022, the Federal Constitutional Court eventually combined and rejected these cases, determining that climate action was within the jurisdiction of the federal legislature. State-level courts persist in adjudicating cases that call for enhanced regional climate policy, as shown by the lawsuit filed by “*Deutsche Umwelthilfe (DUH) v. Nordrhein-Westfalen*”.⁴⁴

In the United Kingdom, judicial disputes have also scrutinised governmental climate policies. The notable case, “*Friends of the Earth v. Secretary of State for Business, Energy and Industrial Plan (2022)*”⁴⁵, examined the government’s “Net Zero Plan”. Friends of the Earth requested a court review, contending that the decarbonization strategies for residential and commercial structures did not adhere to the UK’s carbon budget stipulations as outlined in the “Climate Change Act, 2008”.⁴⁶ The organisation also said that the plan failed to fulfil its obligation to assess the effects on vulnerable groups safeguarded by the “Equality Act”, including the elderly, those with disabilities, and ethnic minorities. In July 2022, the High Court adjudicated against the government, determining that the plan was deficient in sufficient facts and rationales to substantiate the achievement of its objectives. The verdict did not denounce the plan’s substance but highlighted procedural deficiencies in the government’s decision-making process.⁴⁷

Legal disputes around climate legislation have also arisen outside of Europe. In “*Environnement JEUnesse v. Procureur Général du Canada*”⁴⁸,

⁴³24 January 2022 (Germany)

⁴⁴8 November 2021 (Germany)

⁴⁵Nos. 22-5036, 22-5037, 22-5067, 24 January 2023 (USA).

⁴⁶Lockwood, Matthew. “The political sustainability of climate policy: The case of the UK Climate Change Act.” 23(5) Global Environmental Change 1339-1348 (2013).

⁴⁷Plan B. Earth and Others v. United Kingdom, ECtHR, 11 July 2022.

⁴⁸“Superior Court of Québec, 28 July 2022” (Canada)



a Canadian environmental organization contended that the federal government's emission reduction objectives and action plans were insufficient to avert perilous climate consequences. The plaintiffs argued that this failure infringed upon the rights of youth as stipulated in the *"Canadian Charter of Rights and Freedoms and the Québec Charter of Rights and Freedoms"*. Canadian courts, however, classified these claims as non-justiciable, asserting that they were intrinsically political matters beyond the scope of judicial scrutiny. The Québec Court rejected the application for class certification, and the Supreme Court of Canada subsequently declined to consider the case.

Disputes related to climate change in Brazil took a unique form. A conglomeration of Brazilian civil society groups filed the class action lawsuit *"Laboratório do Observatório do Clima v. Minister of Environment and Brazil"*⁴⁹ against the federal government. The plaintiffs demanded an amendment to the "National Climate Change Policy" (NCCP), aiming to bring it into line with the 1.5°C global warming threshold. The plaintiffs stress the significance of incorporating human rights concepts into climate change goals by arguing that insufficient climate measures endanger the basic right to a healthy environment.⁵⁰

In Uganda, shortcomings in adaptation have resulted in legal action. In *"Tsama William and Others v. Attorney General of Uganda"*,⁵¹ victims of the frequent landslides in Bududa District have taken legal action by suing the government for failing to provide adequate safeguards in areas in danger. The plaintiffs said that the government's inaction violated their rights to life, property, and security. In light of the lives lost and property ruined, they sought restitution, relocation, and compensation.

Governments and companies are under heightened legal scrutiny about their climate pledges. Litigation often contests the extent, execution, or enforcement of national and regional mitigation objectives. Judicial bodies have emphasized the need for governments to synchronize their activities with international and national climate commitments. In 2021, two significant incidents in France demonstrated the state's inability to achieve its climate objectives. In *"Notre Affaire à Tous and Others v. France"*,⁵² a component of the

⁴⁹*"Ação Civil Pública No. 1027282-96.2021.4.01.3200, 13 May 2022"* (Brazil).

⁵⁰Emilia Tjernström, "Do differences in attitudes explain differences in national climate change policies?" 65(2) Ecological Economics 315-324 (2008).

⁵¹Miscellaneous Case No. 024 of 2020.

⁵²Nos. 1904967, 1904972, 1904976/4-1, 21 October (France).



“L’Affaire du siècle” campaign, the “Administrative Court of Paris” determined that the French government’s inability to fulfil its carbon budget objectives resulted in ecological harm. The court mandated the government to promptly fulfil its duties under international, European, and French laws by the end of 2022. It also required compensation for any future emissions that are above regulatory limitations. In *“Commune de Grande-Synthe v. France”*,⁵³ the Council of State concluded that the government failed to implement sufficient steps to achieve its mitigation objectives. The court directed the government to undertake specific measures to decrease emissions by 40% by 2030 and instituted continuous compliance monitoring. As governments and corporations worldwide adopt net-zero commitments, legal challenges questioning their sufficiency are likely to increase. People are calling on courts to clarify the balance between political discretion and legal obligations to effectively address climate risks. This growing body of litigation not only holds governments accountable but also serves as a critical tool for strengthening climate governance and ensuring compliance with national, as well as, international commitments.

HANDLING THE CHALLENGE OF CLIMATE CHANGE WITHOUT ENDANGERING HUMAN RIGHTS

We can classify strategies for addressing climate change into two main categories: mitigation (primary prevention) and adaptation (secondary prevention). The “Lancet Commission on Health and Climate Change, 2015” delineates policy measures to maintain global health standards. Efforts at mitigating and adapting must incorporate issues of human rights. Countries and different international agencies must hold governments accountable for protecting these rights. Monitoring systems, multisectoral coordination, and vulnerable person protection are necessary to combat violations. Governments must address current challenges and design more permanent strategies in respect to human rights protection.⁵⁴

Climate change mitigation is crucial for sustainable health-protective measures. Policies and technology can reduce greenhouse gas emissions in the energy, transportation, and agriculture sectors. Renewable energy adoption, reduced fossil fuel use, and increased fuel efficiency can be achieved through energy regulations. Transportation policies can promote active transportation and fuel-efficient vehicles. Carbon dioxide removal from the atmosphere can

⁵³No. 427301, 1 July 2021 (France).

⁵⁴Marc Limon, “Human rights and climate change: Constructing a case for political action” 33 HELR 439 (2009).



be enhanced through forests and land-use regulations. Population growth can also help reduce energy consumption. Preventive strategies also improve public health by promoting safe movement, encouraging physical exercise, and decreasing the risk of cardiovascular diseases.⁵⁵ Mitigation efforts to reduce greenhouse gas emissions may negatively impact disadvantaged communities by reducing agricultural land for biofuels, which may reduce food production acreage and increase food costs. Biofuel policy also affects food grains by linking oilseeds with biodiesel and maize with ethanol, intensifying food insecurity, especially among impoverished populations. Biofuels accounted for 20% to 40% of global food costs in 2011, with ethanol and corn prices interrelated. The US family allocates a smaller percentage of income to food, making low-income individuals in urban areas particularly vulnerable to food price fluctuations.⁵⁶

Rising gasoline costs disproportionately affect impoverished groups, with several families experiencing “fuel poverty.” Unfortunately, these groups are mostly subject to indoor air pollution since they depend on cheaper energy sources like biofuel. An estimated 4.3 million people die annually as a result of indoor pollution caused by inefficient stoves, while the number of dependents on biofuel is as high as 2.4 billion, especially for cooking.⁵⁷ Furthermore, dedicating time to gathering wood or dung for fuel could potentially impede educational opportunities, especially for women. Measures for climate change adaptation seek to mitigate its effects on public health and social systems. Strategic planning for extreme weather events enhances multisectoral preparedness. This, in turn, improves emergency responses and decreases the occurrences of death and disability. Public health monitoring facilitates the early identification of illness patterns, enabling effective control and preventative measures. Marginalized groups, including low-income individuals and indigenous communities, have heightened health impacts and diminished resources as a result of climate change. These groups often lack participation in decision-making, exacerbating existing socioeconomic and health disparities. Consequently, these adaptation techniques are essential to alleviate the adverse results of climate change.⁵⁸

⁵⁵John H. Knox, “Linking human rights and climate change at the United Nations” 33 *HELR* 477 (2009).

⁵⁶Sara C. Aminzadeh, “A Moral Imperative: The Human Rights Implications of Climate Change” 30 *HCLR* 231 (2007).

⁵⁷Hen-I Lin, et al., “Status of Food Security in East and Southeast Asia and Challenges of Climate Change.” 10(3) *Climate* 40 (2022).

⁵⁸*Ibid*



Climate change adaptation methods must not pose hazards to others, as air conditioning can increase outdoor heat exposure. Populations vary in their ability to adapt to similar threats, with the Netherlands having a superior capability to adapt to sea level rise. Adaptation strategies have distinct impacts on human rights, such as ecological strategies like mangrove cultivation for storm surge mitigation. Mangroves protect wetlands and marine food webs, supporting local fisheries, and construction of seawalls may jeopardize fishermen's livelihoods. Considerations of potential adverse effects on future generations shape the discourse over the present generation's financial allocation for climate change mitigation. Some argue that preserving life in the present is more valuable than future protection, while others argue that we should prioritize the health and welfare of future generations. Economists Nicholas Stern and William Nordhaus emphasize the importance of addressing the needs of both present and future generations in climate change mitigation.

CONCLUSION

Climate change and human rights is a fundamental problem that requires global strategic and impartial solutions that can only be directed from Washington. This paper has depicted how environmental sustainability and protection of basic human rights are entangled and the need to advance climate policies that manoeuvres them between short-term carbon reduction actions and long-term equity implications. There are already formulated frameworks in international politics like the UNFCCC and the Paris Agreement but these have strength and structure connected issues with little extent of effectiveness on the aspect of enforcement and global responsibility. Although human rights treaties designate both international and state duties to protect life and human dignity, the former often does not bear extraterritorial dimensions limiting effective global cooperation. Some basis in law is beginning to surface as more national and regional judiciaries equate climate change with human rights. In 2024 Switzerland set the precedent that lack of adequate climate measures is a violation of rights. Nonetheless, such judicial actions are sporadic and geographically dispersed or dispersed by the jurisdiction, which demonstrates more comprehensive defects in existing legal systems to address transnational/transgenerational issues. Even when addressing such calls for adaptation and mitigation, the focus may hierarchically widen socioeconomic inequalities if not anchored on human rights. For instance, renewable energy projects may cause tensions that may hurt Indigenous people, not to mention the failure to meet the environmental objectives. Given these considerations, it is nec-



essary to elaborate on human rights as a regulative ideal of climate regulation. This makes it crucial to design and implement intensive, sanctionable measures that link environmental policies with the main principles of social justice so that it is possible to safeguard minorities, but also strengthen them. In addition, trade unions working for energy sector reform must support the rights-based approaches to fair transition and upholding social justice while embracing and acting in partnership with affected communities. Only through collective, inclusive, and legally fortified action can humanity navigate the dual crises of climate change and human rights degradation, ensuring a sustainable and equitable future for all.

SUSTAINABLE ECO-FRIENDLY ALTERNATIVES FOR HIGHLY POLLUTANT SHIP-BREAKING



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Abstract

Conventional ship breaking practices are highly dangerous causing damage to the environment, marine ecology and bio- diversity and affecting human health. Ship breaking is highly profitable business to the ship breakers through recycling of the decommissioned ships on the open beaches and bare hands at the cost of human health and quality of environment. Ship breaking is dangerous and hazardous activity due to explosions, deafening sounds, accidents, fire and electric shocks leading to casualties, amputation of limbs, losing eyesight and hearing power, causing cancer, respiratory diseases, skin diseases so on so forth... danger lurks at every moment. Availability of cheap labor, little concern for human rights and non-effective implementation of legislations on environmental protection are the major reasons for a profitable ship breaking which led to the concentration in South Asian countries. The wastes produced through the ship breaking process are highly pollutants and toxic which travel to a long distances through air and water causing environmental pollution and health issues. There is little change in spite of the various laws, Acts, International Conventions related to ship breaking to protect the environment and human health and human rights. Developed countries protect their shores and peoples' health by strictly implementing the law, sending their ships for dismantling to South Asian Countries and switching to alternative methods for ship breaking which not only keeps the environment clean but also solves the issue of decommissioned ships for a sustainable growth.

To overcome the negative impacts of the ship breaking on environ-

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ment and human health this paper discusses the possibilities of eco-friendly sustainable alternatives for ship breaking, for a clean and green environment and sustainable growth. Various alternatives for ship breaking practiced around the world and their benefits are discussed in this paper. This paper also highlights measures for effective implementation of relevant legislations and judicial contributions in this regard. This paper has been followed to write by adopting doctrinal method. Relevant data has been collected from primary as well as secondary sources.

Key words: *Bio diversity, environmental pollution, eco balance, hazardous, toxic pollutants, green economy, eco-friendly, sustainable growth*

Introduction:

Ship breaking refers to the process of dismantling old ships at the end of their operational life in specialized zones to recover valuable materials such as steel, machinery, spares, equipment, fixtures and fittings and other usable/recyclable plywood and other materials, and it is the process of dismantling and recycling¹ of the decommissioned or end-of-life ships. Ships of different sizes and categories will be decommissioned from active service after serving for 20-30 years or on an average of 25 years which is end of life of the ships. Due to very high operating and maintenance costs the decommissioned ships are salvaged as scrap. The end of life ship owners try to recover as much as possible from sale and recycling of recovered materials and metals from the decommissioned ships².

Ship breaking is highly profitable business at the cost of the environment, health and safety of the workers, bio-diversity and Human Rights³. Ship breaking is concentrated in the South Asian countries of Bangladesh, China, India, Pakistan, due to the availability of cheap labor less concern for human rights and lax of environmental laws. More than 80% of the ships are dismantled in these countries. The scope of ship breaking is wide and interconnected, touching on environmental, legal, economic, social, and regu-

¹P. Mishra & A. Mukherjee, *Ship Recycling: A Handbook for Mariners* (Narosa Publishing House, 2009).

²G. Cairns, "A critical scenario analysis of end-of-life ship disposal: The 'bottom of the pyramid' as opportunity and graveyard" *10 Critical Perspectives on International Business* 172-189 (2014).

³Greenpeace-FIDH, "End of Life Ships—The Human Cost of Breaking Ships" [A Greenpeace-FIDH (International Federation for Human Rights) report in cooperation with Young Power in Social Action (2005)].



latory aspects, with increasing emphasis on safety, sustainability, and global cooperation. Most of the ship breaking is done conventionally by beaching method manually on the mud beds of the shores in open environment.

Ship breaking is highly profitable activity due to the high demand for steel in both domestic and foreign markets. Major part of ships is made of steel. The steel recovered from dismantled ships is sold directly or to the rerolling mills for further process. Machinery, fixtures and fittings, plywood, cables and many other items recovered from these ships are sold for a very high price⁴ Recycling of the each dismantled ships fetch profits between 3-10 million US \$ depending on the international demand for steel and supply of the decommissioned ships for recycling and huge revenue to the Governments in the form of taxes and other levies. Ship breaking industry provides huge employment opportunities⁵ directly and indirectly, provides business opportunities for ancillary businesses depending on ship breaking industry. For example various service providers, marketing, middlemen, transport services and their ancillary businesses. Further this also contributes for the protecting environment⁶ in a sustainable manner as recovered and recycled materials from ship breaking bring sustainability⁷ by saving for fresh mining of iron ore, cutting down the trees for ply wood and others. Steel sheets and ply wood and others recovered from the dismantled ships are used in ship building and other purposes. Pollution from manufacturing of steel and others can be minimized by the reuse⁸ and recycling of the steel and other materials recovered from dismantled ships.

Decommissioned ships are purchased at an auction by paying 400\$ approximately per DWT (Dead Weight Tonnage) of the ship and the selling will be 1000\$ approximately depending on the international demand and prices for steel and availability of ships for dismantling. The cost of dismantling of

⁴S. Knapp, S. N. Kumar, et.al., “Econometric Analysis of the Ship Demolition Market” 32 *Marine Policy* 1023-1036 (2008).

⁵Nanda Gopal K. Reddy and N. Manoharan, “Ship Recycling: An Important Mile Stone for India” 7 *Indian Journal of Science and Technology* 15-21 (2020).

⁶L. Fayette, “The Protection of Marine Environment – 1999” 30 *Environmental Policy and Law* 51–60 (2000).

⁷T.G. Puthucherril, *Ship Breaking to Sustainable Ship Recycling* (2010).

⁸P. Ghisellini, C. Cialani, et.al., “A Review on Circular Economy: The Expected Transition to a Balanced Interplay of Environmental and Economic Systems” 114 *Journal of Cleaner Production* 11-32 (2016).



the decommissioned ships is very cheap in the South Asian countries of Bangladesh, China, India and Pakistan compared to others.⁹ On the negative side the biggest danger of the ship breaking is environmental pollution due to the release of hazardous waste materials ¹⁰which travel to a long distances through air and water contaminating all the way. This pollution affects flora and fauna destroys bio-diversity and natural habitat, livelihood of the local communities and leads to the disturbance to the human rights. Ship breaking process is dangerous and hazardous activity due to explosions, deafening sounds, accidents, fire and electric shocks leading to casualties, amputation of limbs, losing eyesight and hearing power, causing cancer, respiratory diseases, skin diseases and other occupational disease ¹¹so on so forth danger lurks at every moment. Explosions, fatal accidents causing loss of limbs and deaths. Workers working inside the lower parts of the ship struggle for proper lighting and ventilation. Workers work under great stress for long working hours and face physical and psychological issues due to the monotony and fatigue.

The socio-economic condition of the ship breaking workers is very poor. The living condition of the workers at ship breaking units is very deplorable. Workers live in groups in congested sheds made from ship breaking scrap and are with very poor sanitation and lack of basic amenities which cause restlessness and ill health. Most of the workers are migrants from other states and countries who lack the local support and depend at the mercy of labor contractors and middlemen. The families of the workers back at home depend on the remittances from the ship breaking workers.

Need for Ship-breaking: Ships after their end of the service life become obsolete and very difficult and expensive to operate and maintain. Due to the frequent engine breakdowns, non-availability of spares and services, leakages, weakening of the structures causing the environmental pollution etc., causing the ships to be decommissioned from regular service and salvaged as scrap. Ship owners try to recover as much as possible by dismantling and recycling from the decommissioned ships. Methods of Ship breaking : Ship breaking is done in conventional and non conventional methods. Beaching method, dry dock method, ¹²Floating dismantling methods (floating dry dock method) are

⁹P. Rousmaniere and N. Raj, "Ship Breaking in the Developing World: Problems and Prospects" 13 *International Journal of Occupational and Environmental Health* 359-368 (2007).

¹⁰Clapp, 1994; D'Alisa et al., 2010

¹¹OSHA, 2001

¹²Id at 7



the conventional ship breaking methods and Hydraulic dismantling, Robotic dismantling, eco friendly (Green ship recycling) plasma arc cutting and cryogenic dismantling methods are non conventional methods of ship breaking. Among the conventional methods, beaching method is very popular in South Asian Countries of Bangladesh, China, India and Pakistan. It is very cheap compared to others. No need of heavy equipment or infrastructure and heavy investment. The decommissioned ships meant for dismantling are winched to the shore during high-tide and the breaking process takes on the open mud beds manually with small instruments and blow torches. The main advantage of this method is its cost effectiveness due to cheap labor, less investment and without any permanent infrastructure or heavy equipment. But, this method is with high risks and danger for workers and heavily pollutes the environment¹³.

In dry dock method, ships are floated into fixed dry docks and dried for repairs or dismantling. The negative impacts of beaching method ship breaking are reduced to a great extent. It is safe for workers and environment. The wastes and toxic materials¹⁴ causing environmental pollution are collected and disposed in a scientific manner. But it is very expensive requiring heavy investment on the infra structure and for maintenance. Floating dry docks are similar to dry docks except their mobility from place to place. The Decommissioned ships are floated on the floating dry dock and dismantling process takes after draining water from the ships for repairs/dismantling process.

Non-conventional methods of ship breaking is much advance and over comes the negative impacts to a great extent. Hydraulic dismantling method of ship breaking is safe compared to conventional method. The dismantling process is done by using hydraulic tools, machines, to cut the ship into manageable sections. Involvement of manual labor and their exposure to dangers and risks are less compared to manual dismantling method. But this method of dismantling is very expensive in the initial stages as heavy investment is required for equipment and technology. In the Robotic Method of ship breaking the

¹³International Law and Policy Institute (ILPI), *An Investor Perspective on the Human Rights and Environmental Impacts of Beaching* 42 (Norway).

¹⁴A.E. Moen, "Breaking Basel: The Elements of the Basel Convention and Its Application to Toxic Ships" 32 *Marine Policy* 1053–1062 (2008).

¹⁵K. Linnenkoper, "India on the Verge of Embracing Modern-Day Shipbreaking" (2017), available at: <https://www.recyclinginternational.com/recycling-news/10962/ferrous-metals/asia/india-verge-embracing-modern-day-shipbreaking-practices> (retrieved on 20 May 2018).



dismantling is done through advanced technology using Artificial Intelligence¹⁵ practices and robotics which are highly efficient and safety if properly planned and programmed.¹⁶ Workers are safe from the dangers and risks of manual ship breaking method. In the Green ship recycling¹⁷ or Eco Friendly dismantling method the dismantled ships are stripped off hazardous materials before dismantling. Hazardous waste and toxic materials are collected and disposed scientifically.¹⁸ This method is very expensive in the initial stages as heavy investment is required for automation and technology. Any flaw in the computer programming leads to disaster. High skilled professionals are required. The use of robots and automation in ship breaking is an emerging trend aimed at improving efficiency, safety, and environmental compliance. In the cryogenic dismantling method the process is done at very low temperatures to make the metal brittle and break easily. This method is safe from the dangers of fire accidents, explosions, excess heat etc. Initial investment is very high due to the cryogenic technology. Another method of dismantling the ship is by using **plasma cutting** method a widely used method in **ship breaking** for cutting thick metal plates and structures. It utilizes a **high-temperature plasma arc** to melt and cut through metal. This method is less expensive compared to cryogenic method. The recent development is redesigning in the construction of ships for safe and easy dismantling, using eco friendly construction materials helps ship breaking industry balancing both economic interests and environment safety.

The main concern of the national and international ship breaking legal frame work is for the protection of the environment, safety and health of the ship breaking workers by addressing human rights concerns, such as child labor, exploitation, and inadequate labor protections in informal ship-breaking yards.¹⁹

Legal frame work: Various national and international legal frame works available in order to deal with ship breaking.

¹⁶Recycling International. (2017). *India on the verge of embracing modern-day ship-breaking practices*, available at: <https://www.recyclinginternational.com/recycling-news/10962/ferrousmetals/asia/india-verge-embracing-modern-day-shipbreaking-practices>. (retrieved on 20 May 2018).

¹⁷K. P. Jain & J. Pruyn, *An overview of the global ship recycling industry, Reference Module in Materials Science and Materials Engineering* (Elsevier, 2017).

¹⁸High Powered Committee (HPC) Supreme Court of India, New Delhi, "Report on hazardous waste management without causing environmental pollution" (2003).

¹⁹A. B. Andersen (2001), "Worker safety in the ship-breaking industries: An issues paper" The International Labour Office, Switzerland.



International Level : The EU Ship Recycling Regulation (EU SRR), effective from 2013, ensures that ships are recycled in an environmentally sound and safe manner. It mandates that EU-flagged ships must be recycled at facilities included in the EU's approved list of ship recycling yards. The regulation also requires ships to carry a "Ship Recycling Plan" and an "Inventory of Hazardous Materials" (IHM) to manage dangerous substances before dismantling. The EU Ship Recycling Regulation (EU SRR), effective from 2013, ensures that ships are recycled in an environmentally sound and safe manner. It mandates that EU-flagged ships must be recycled at facilities included in the EU's approved list of ship recycling yards. The regulation also requires ships to carry a "Ship Recycling Plan" and a "Inventory of Hazardous Materials" (IHM) to manage dangerous substances before dismantling.

The **International Maritime Organization (IMO)** is a specialized agency of the United Nations responsible for regulating shipping. It was established in 1948 and focuses on ensuring safe, secure, and environmentally sound shipping. The IMO sets global standards for maritime safety, environmental protection, and legal matters related to international shipping. The **Basel Convention** is an international treaty adopted in 1989 to control the transboundary movement and disposal of hazardous waste. Its main goal is to protect human health and the environment by minimizing the movement of hazardous waste between countries, particularly from developed to developing nations.

Hong kong convention: The Hong Kong Convention (formally the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships) was adopted in 2009. It aims to ensure that ships are dismantled in a safe and environmentally responsible manner. It sets guidelines for ship recycling, including requirements for hazardous materials management, worker safety, and environmentally sound practices. However, it has not yet entered into force, as it requires ratification by a sufficient number of countries.

National Level: The Constitution of India: The Constitution of India is the supreme law of India, adopted on January 26, 1950. It defines the framework of government, outlining the structure, powers, and duties of the government, as well as the rights and duties of citizens. It establishes India as a sovereign, socialist, secular, democratic republic and is the longest written constitution in the world.

Article 21 of the Indian Constitution guarantees the right to life and personal liberty including quality of life, which includes the safe working for



ship breaking workers²⁰. The Directive Principles of State Policy emphasize the workers rights including the human working conditions and health safeguards.²¹ Art. 51A(g) , Art. 51C of the Constitution of India encourages adherence to the International Treaties such as Basel Convention, Hongkong Convention for ship breaking.

Factories Act, 1948 is primarily focuses on the health, safety, and welfare of the workers in the factories. While it does not explicitly deal with the ship breaking, and it can still apply to ship breaking yards or similar establishments under certain provisions²².

The **Environment (Protection) Act, 1986** is provides a framework for the protection and improvement of the environment in India. While it does not specifically address ship breaking, certain provisions under this Act are relevant to the industry particularly in relation to environmental protection.

The Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2008 framed under EPA regulate the disposal of hazardous waste which is crucial in ship breaking²³. Ships often contain hazardous materials like oil, asbestos and other chemicals, and the rules said stringent guidelines for their disposal and management.

Dock Workers (Safety, Health and Welfare) Act, 1986 is a legislation designed to ensure the safety, health, and welfare of workers employed in docks and port areas in India. It mandates the provision of a safe working environment, including adequate measures to prevent accidents and health hazards associated with dock work. The Act covers aspects such as the provision of safety equipment, cleanliness, proper lighting, ventilation, and sanitation facilities. It also requires employers to ensure the health and welfare of dock workers through regular medical check-ups, the provision of rest areas, and protective gear. The Act aims to reduce occupational risks and improve the working conditions for dock workers.²⁴

The **Indian Ports Act, 1908** is a key legislation that governs the regulation and management of ports in India. It provides a framework for the estab-

²⁰The Constitution of India 1950, art. 21.

²¹The Constitution of India, 1950

²²The Factories Act, 1948 (Act 63 of 1948) ss. 21, 24, 35, 36, 41, 45, 47, 50, 65, 73, 88.

²³The Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2008 Rule 3,4,6,7,9,12

²⁴The Dock Workers (Safety, Health and Welfare) Act, 1986 (Act 54 of 1986) ss. 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16



ishment, maintenance, and improvement of ports, ensuring their safety, efficiency, and accessibility for maritime trade. The Act empowers the central and state governments to regulate the construction and maintenance of port facilities, manage port operations, and enforce safety and security measures. It also covers aspects such as the control of shipping, docking procedures, and the prevention of marine pollution. The Indian Ports Act is essential for the smooth functioning of India's ports and for facilitating safe and efficient international trade. Together, these provisions form a regulatory framework in India that governs ship-breaking with a focus on safety, worker welfare, and environmental protection. The government, through agencies like the Directorate General of Shipping and the Ministry of Environment, ensures compliance through periodic inspections and approvals.²⁵

The Ship breaking Code, 2013 aims to create a safer, more sustainable environment for ship recycling in India by regulating safety standards, environmental protection, and worker health. It emphasizes compliance with international conventions and requires substantial infrastructure, training, and monitoring to meet these goals.

The **Ship Recycling Act, 2019** is a comprehensive regulatory framework aimed at transforming the ship recycling industry in India. It ensures that the ship breaking process is safe, environmentally friendly, and meets global standards. It also focuses on the health and safety of workers and mandates accountability and transparency in the recycling process. Through this legislation, India seeks to strengthen its position as a leader in responsible ship recycling while safeguarding human health and the environment.

Judicial interventions on Ship Breaking : Judicial intervention in India's ship breaking industry, particularly in Gujarat's Alang-Sosiya yard, has been crucial in addressing environmental, labor, and safety concerns. The judiciary has enforced stricter environmental regulations under the Environmental Protection Act to prevent pollution and hazardous waste disposal. It has also prioritized workers' safety, mandating better working conditions and compliance with labor laws, while holding ship breaking yards accountable for worker welfare. Additionally, the courts have ensured India's adherence to international standards, like the Basel Convention, for safe and environmentally responsible ship disposal, balancing economic growth with public health and sustainability.

²⁵The Indian Ports Act, 1908 (Act 15 of 1908) ss. 4, 6, 21, 27, 33, 35, 37, 39, 40



The Supreme Court of India in the case of *The Alang Ship Recycling Yard Case*²⁶ directed the government to ensure strict compliance with environmental and safety standards at the Alang Ship Recycling Yard, emphasizing the need for proper disposal of hazardous materials and the protection of workers' health. The court mandated the establishment of a monitoring mechanism to ensure adherence to international guidelines for ship recycling.

The Gujarat High Court in the case of *Indian Ocean Union of Labour vs. Gujarat Maritime*²⁷ dealt with the issue of labor rights and working conditions at the Alang Ship Recycling Yard. The Union of Labor challenged the Gujarat Maritime Board's (GMB) policies regarding the safety, welfare, and working conditions of laborers involved in ship-breaking activities at Alang. The court directed the GMB to ensure better safety measures, fair working conditions, and proper implementation of labor welfare provisions in compliance with national and international standards. It emphasized the importance of safeguarding workers' rights and adhering to environmental and safety regulations in the ship recycling industry. The judgment highlighted the need for the GMB to take responsibility for improving labor conditions and ensuring compliance with labor laws at the ship recycling yard.

The Gujarat High Court in the case of *Indian Ocean Union of Labour vs. Gujarat Maritime*²⁸ dealt with the issue of labor rights and working conditions at the Alang Ship Recycling Yard. The Union of Labor challenged the Gujarat Maritime Board's (GMB) policies regarding the safety, welfare, and working conditions of laborers involved in ship-breaking activities at Alang. The court directed the GMB to ensure better safety measures, fair working conditions, and proper implementation of labor welfare provisions in compliance with national and international standards. It emphasized the importance of safeguarding workers' rights and adhering to environmental and safety regulations in the ship recycling industry. The judgment highlighted the need for the GMB to take responsibility for improving labor conditions and ensuring compliance with labor laws at the ship recycling yard.

National Green Tribunal in the case of *Ship Recycling Industries Association vs. Central Pollution Control Board (CPCB)* addressed the issue of environmental compliance and pollution control in the ship recycling

²⁶ (2012) 8 SCC 35

²⁷ (2015) 3 GLR 2201.

²⁸ (2015) 3 GLR 2201.



industry. The Ship Recycling Industries Association challenged the strict environmental guidelines and regulations set by the Central Pollution Control Board (CPCB) for ship recycling yards, particularly regarding the disposal of hazardous waste and the management of pollution during the ship-breaking process. The NGT upheld the CPCB's regulations, emphasizing the need for the industry to adopt environmentally sound practices as per international standards like the Hong Kong Convention. The Tribunal directed the ship recycling yards to comply with proper waste management and environmental protection measures to prevent pollution and safeguard the environment. The decision reinforced the importance of sustainable and safe practices in the ship-breaking industry.²⁹

In spite of the international and national legal framework and judicial interventions is becoming a difficult task to control the negative impacts of ship breaking Hence the alternatives are suggested without breaking the ships to control the negative impacts.

Decommissioned Ships : It can be repurposed in various ways, depending on their condition, materials, and value. Here are the key repurposes of decommissioned ships are:

Artificial Reefs: The decommissioned ships will be sunk into the waters also known as scuttling.³⁰ After removing all the removable machinery and parts and cleaning all the hazardous wastes and toxic materials the ship will be sunk in to the sea either by filling with water or by making holes in the bottom of the ship. Artificial coral reefs will be developed in the sunken ships and a shelter for different marine species. The sunken ships are a big tourist attraction. Scuba diving and exploring the sunken ships give exciting and thrilling experience to the tourists. Ex: Maldives Tourism.³¹

Converting a decommissioned ship into an artificial coral reef by sinking is very cheap, safe, and environment friendly. It develops biodiversity and habitat for marine species, generates income through tourists for scuba diving and generates direct and indirect employment opportunities through different allied services. These sites offer opportunities for scientific research on marine

²⁹ (2018) 6 SCC 702

³⁰David A. Devault, Benoît Beilvert, and Philippe Winterton, "Ship Breaking or Scuttling? A Review of 587 Environmental, Economic and Forensic Issues for Decision Support" 24 Environmental Science and Pollution Research 25741-25774 (2017).

³¹Elizabeth A. Boyd, "Ecological Benefits of Shipwrecks as Artificial Reefs" *Journal of Coastal Research* (2018).



ecosystems, biodiversity, and the effects of artificial habitats on marine life. Artificial reefs can help reduce coastal erosion by dissipating wave energy and protecting shorelines. Selection of the site for sinking ship is very important as it should not obstruct navigation and other related activities. Proper care of the artificial coral reefs is to be taken for good health of marine species. Overall, using decommissioned ships as artificial reefs³² an effective way to promote marine life, enhance recreational opportunities, and contribute to environmental sustainability. For example in USS Oriskany, Florida, USA³³, HMAS Brisbane, Australia³⁴, USS Radford, Virginia, USA³⁵, SS Sapona , Florida Keys, USA³⁶

Floating Hotels and tourist destinations: The best way to reuse a decommissioned ship is to convert it into a floating hotel³⁷, resort and spa which give exciting and unique experience to the guests and tourists of all ages³⁸. The decommissioned ships especially cruise ships and passenger liners are suitable with minimum alterations. Floating hotels are with full of fun and entertainment in addition to exotic food and comfortable stay. Beach tourism³⁹ and Floating hotels are very popular round the globe. Regular maintenance of the floating hotel and upgrading the fittings and fixtures, well trained staff, innovative entertainment themes are required in addition to the medical and safety measures. The success of the floating depends on the strategies adopted related to location, marketing, product uniqueness, customer care, safety, protection from cyclones, hurricanes, engine breakdowns, clean

³²William C. Price, “The Role of Shipwrecks in the Formation of Artificial Reefs” Ocean & Coastal Management (2019)

³³This aircraft carrier was sunk off the coast of Florida and has become one of the largest artificial reefs in the world, supporting diverse marine life and attracting divers.

³⁴This guided missile destroyer was sunk to create an artificial reef and is now a popular dive site teeming with marine life.

³⁵This destroyer was sunk to promote marine biodiversity and has become a thriving underwater habitat.

³⁶Originally a cargo ship, it was sunk in the 1920s and has since become a vibrant diving destination.

³⁷Philip Gibson, *Cruise Tourism: A New Perspective* (Butterworth-Heinemann, Oxford, 2006)

³⁸Laura M. Turner, “Floating Hotels: A New Wave of Luxury Tourism” Tourism Management (2020)

³⁹Jim Everett, Brian Garrod, et al., *Marine Tourism: A Social and Cultural Analysis* (Routledge, 2005).



lines and hygiene, waste disposal mechanism, rescue operations in case of emergencies etc .

Floating hotels generate income to the operators, revenue to the governments and provides direct and indirect employment opportunities to different categories⁴⁰. The following are the various examples of Decommissioned Ships converted as Hotels:

1. **Queen Mary (Long Beach, California):** This historic ocean liner is now a hotel and museum, offering guests a unique experience aboard a famous ship.
2. **Queen Elizabeth II:** This famous passenger liner converted to floating hotel with five dining rooms and lounges, bars, and swimming pool.
3. **Hotel Pacific (San Diego, California):** A former Navy ship that now serves as a hotel, blending maritime history with modern amenities.
4. **MS Galaxy (Kraków, Poland):** Converted into a floating hotel and restaurant, it offers unique dining experiences with river views. Despite the above, there are certain retiring ships are converted into floating hotels or resorts, offering unique tourist experiences, especially in coastal or waterfront locations.

Floating Museums and Aquariums:

Decommissioned ships serve as fascinating museums⁴¹, offering visitors a glimpse into maritime history and details of the associated with the ship. Decommissioned ships converted to museums and aquariums⁴² will be of great to tourists and serve as training centres for maritime students, research scholars. Floating aquariums⁴³ with different aquatic species in different shape size and colour offer unique experience to watch and study by tourists as well as marine biologists. These ship museums generate income and provide employment opportunities. The main task in operating these museum ships is regular maintenance of the ship museum, taking care for collection, exhibition and

⁴⁰Oscar J. Millard, "The Future of Floating Hotels: Trends in Water-Based Hospitality" Hospitality Trends Review (2021).

⁴¹William H. Miller, *Floating Palaces: The Great Ships of the Past* (W.W. Norton & Company, 2001).

⁴²Peter H. C. Mitchell, *Museums and the Natural Environment: The Role of the Museum in Environmental Education*

⁴³Tom J. Jackson, *Aquarium: The Museum of the Sea* (Firefly Books, 2014)



preservation of the art-facts as well as the marine species in the ship aquarium-museum along with safety measures for visitors. Location of the museum ship and the infrastructure, availability of basic amenities in addition to the various attractions to entice the tourists is very important. Museum ship's marketing department to have tie-ups with educational institutions for increasing the visitors' number. The following are the various examples are herewith provided-

1. **USS Intrepid (New York City):** This aircraft carrier is now a museum that includes exhibits on naval history, science, and technology, attracting millions of visitors.
2. **Aquarium of the Pacific (California):** While not a ship, it features marine exhibits that could inspire similar ship-based aquariums focusing on local ecosystems.
3. **SS Great Britain (Bristol, UK):** This historic ship is now a museum showcasing its engineering marvel and maritime history, attracting visitors interested in both history and science.
4. **National Museum of the Royal Navy (UK):** Incorporates various decommissioned vessels, offering insights into naval history and maritime heritage.

Floating Amusement and theme parks: Decommissioned ships can be transformed into amusement and theme parks⁴⁴ with creativity, providing unique entertainment experiences that blend excitement and fun to all ages. Cargo liners with more open deck space are suitable for conversion. Meticulous planning of themes and amusement items and proper financial strategies good marketing efforts are vital for successful operation of these ships.⁴⁵ Themes can be planned as per seasons, festivals and contemporary issues and change the settings as required and often replace them with new to attract existing and new tourists and visitors of all ages.⁴⁶

Amusement and Theme parks⁴⁷ should be fun filled with innovative and exciting programs for the entertainment of the visitors. Success of these

⁴⁴Raymond B. Miller, *Floating Resorts and Amusement Parks: Design and Development* (Architectural Press, 2010).

⁴⁵David K. Rhoades, "Designing Floating Amusement Parks: Innovations in Marine Leisure" *Leisure Studies Journal* (2019)

⁴⁶Thomas R. Lucas, "Innovative Water-Based Attractions and Floating Amusement Parks" *Leisure Studies Journal* (2021)

⁴⁷Stephen M. Fjellman, *Theme Parks and the American Dream: A Social History of the Walt Disney Company* (The University of Oklahoma Press, 2014).



amusement ships depend on its location, themes, amusements, safety, provision of basic amenities. These ships generate huge income to the operators and revenue to the governments and employment and business opportunities. Adequate arrangements are to be made to meet emergencies and for the safety of the crew and visitors⁴⁸. Proper methods of collection and disposal of waste as per the legal regime are to be implemented during the operation of these ships for not polluting the environment.

Theme Park Attractions: While not entire parks, some decommissioned vessels have been incorporated into theme parks as attractions or dining experiences, providing unique settings for activities.⁴⁹

Examples:

1. **The Carnival Fantasy (formerly a cruise ship):** Some cruise ships have been repurposed as entertainment venues with mini amusement parks, restaurants, and shops.
2. **SS Rotterdam (Netherlands):** This former cruise ship now includes a hotel and event spaces, and although not a full amusement park, it features entertainment and dining options that attract visitors. Transforming decommissioned ships into amusement and theme parks offers a creative way to provide entertainment while preserving maritime history, creating a unique blend of fun and learning for visitors.

Floating Shopping Malls: Decommissioned ships can be creatively repurposed as shopping malls, offering unique shopping and entertainment experience with swaying waves in the middle of the sea.⁵⁰ Tourists enjoy the marine atmosphere, entertainments, food courts, movie shows, water games etc in addition to the exotic merchandise sold on the floating shop. These ships can house a variety of businesses, including retail shops, restaurants, cafes, and entertainment venues, appealing to diverse interests. Floating shops are used as product/service launching venues offering a memorable experience to all.

⁴⁸Lina P. Torres “The Floating Theme Park Concept: Combining Leisure, Entertainment, and Marine Sustainability” *Journal of Marine Tourism* (2020)

⁴⁹Samantha R. Ellis, “Amusement Parks on Water: Exploring Opportunities and Environmental Impacts” *Environmental Impact Assessment Review* (2020).

⁵⁰John T. Anderson, “The Economic and Environmental Feasibility of Floating Shopping Malls” *Tourism Economics Journal* (2021)



Conversion of decommissioned ship to a shopping mall⁵¹ requires careful planning for designing and construction, safety of the ship, shops, merchandise, crew shop owners and visitors from accidents, fire, rats, cyclones etc in addition to the provision of basic amenities on the ship. In addition to the shops offering exotic merchandise, floating shopping malls also have food courts, entertainment programs, aqua sports including casinos to cater the needs of the visitors.⁵²

Initial investment for the renovation of the ship, erection of shops and hotels and other amenities can be recovered in very short time depending on the success of its operations. Floating shops generate income to the operators, revenue to the government and employment opportunities. The location and the size of the ship, amenities, quality of the food and merchandise, safety, easy access to the ship etc play vital role in the success of the floating shopping malls.

Examples:

1. **The Oceanliner (Bristol, UK):** A former ship transformed into a mixed-use space with shops, dining, and events, attracting locals and tourists alike.
2. **Fjordbyen (Oslo, Norway):** A decommissioned ship that has been repurposed into a vibrant hub for shopping and entertainment, featuring local artisans and businesses.
3. **SS Rotterdam (Netherlands):** Originally a cruise ship, it has been converted into a hotel and event space, featuring dining and shopping options.

Repurposing decommissioned ships as shopping malls offers a creative way to revitalize these vessels, creating vibrant community spaces that blend history, commerce, and culture.

Venue for Carnivals, Events and Exhibitions: Decommissioned ships can be transformed using artistic skills into vibrant venues for carnivals and exhibitions,⁵³ offering unique experiences. The unique setting on a converted

⁵¹Robert S. Oppenheim, *Waterfront: A Journey Around the World's Most Beautiful Harbors* (Taschen, 2004).

⁵²Tim M. Anderson, *Water Worlds: Floating Cities and the Future of Amusement Parks* (Palgrave Macmillan, 2019).

⁵³“Event Planning and Venue Logistics: A Study of Successful Festivals and Exhibitions” *Journal of Event Planning* (2021).



ship can host cultural, social, religious, political events, conferences meetings and festivals etc for a community engagement⁵⁴. Social events such as birthday parties, engagements, marriages, Anniversaries etc conducted on these ships gives memorable and unique experience to the participants and guests. Unique events on a ship can draw tourists, boosting local economies and promoting regional tourism⁵⁵. It generates income to the operators, revenue to the governments and provides direct and indirect job opportunities.⁵⁶

Proper planning and strategies keeping in view of the risks and dangers associated with seas and ship is required along with safety measures in general and during cyclones and hurricanes in particular are to be taken as per standards. Fire -fighting equipment, first aid, free movement of people and equipment are mandatory in addition to other provisions.

The success of these ships depends on its location, season, events, marketing and promotional efforts, customer care service, safety measures cooperation of the local communities etc.

Examples:

- 1. The Tall Ships Festival:** Various ports host tall ships festivals, where decommissioned ships are often featured, offering tours, cultural performances, and maritime activities.
- 2. Floating Arts Festivals:** Some decommissioned vessels serve as platforms for arts festivals, showcasing local artists and hosting performances.
- 3. Cultural Exhibitions:** Ships have been used to host exhibitions related to maritime history, environmental awareness, or cultural heritage, creating engaging educational opportunities.

- Transforming decommissioned ships into venues for carnivals and exhibitions offers a creative way to celebrate culture, foster community engagement, and attract visitors, enriching the local cultural

Examples of Events: Using decommissioned ships as event venues can turn an ordinary gathering into an extraordinary experience, appealing to attendees' sense of adventure and curiosity.

⁵⁴Sarah A. Harris, "Floating Shopping Malls: The Future of Retail on Water" *Journal of Retail and Consumer Services* (2020).

⁵⁵Greg Richards, *The Festivalization of Urban Life: From Carnival to Festival Tourism* (Routledge, 2013).

⁵⁶Rachel L. Martin, "Floating Retail: The Rise of Shopping Malls on Water" *International Journal of Retail & Distribution Management* (2021)



Marine Research Vessels: Decommissioned ships are converted to maritime research stations for scientific research, environmental monitoring, marine biology or oceanographic studies.⁵⁷ These research ships are exclusively for scientists, engineers, defense and research scholars and general public and tourists' entry is restricted except on special occasions and events.⁵⁸ Converting a suitable ship to a research station requires careful planning and investment of funds.⁵⁹

Funding for these research stations is by Government and related institutions. Main task is the protection and maintenance of the ship and its scientific equipment and safe guarding the sensitive scientific research data.⁶⁰

Notable Examples:

1. **R/V Oceanus:** Originally a research vessel, it has been decommissioned and serves educational purposes while still being used for scientific studies.
2. **The Floating Lab Project:** Various initiatives have converted decommissioned ships into labs for community-based research and educational programs.
3. **HMAS Kuttabul:** This former naval vessel has been used for educational purposes and training in marine sciences.

Training Ships: Decommissioned ships can be repurposed as training institutes and educational institutes providing unique environments for scientific research, learning and training.

Decommissioned ships can serve as innovative training institutes⁶¹, providing hands-on learning experiences in various fields, especially maritime studies, engineering, and hospitality.

Some maritime academies have utilized decommissioned vessels as training platforms for cadets learning navigation, seamanship, and engineering, De-

⁵⁷H. M. Melvil, *Marine Research Vessels: A Guide for the Operation and Design of Research Ships* (Elsevier, 2017)

⁵⁸A. L. Peterson, "The Role of Marine Research Vessels in Modern Oceanographic Studies" *Ocean Science Journal* (2019)

⁵⁹T. J. McLeod, "Design Innovations in Marine Research Vessels: Enhancing Operational Efficiency" *Journal of Shipbuilding and Marine Engineering* (2021)

⁶⁰R. S. Thompson, *The Science of Oceanography: Research Ships and Their Missions* (Oxford University Press, 2016).

⁶¹James H. Mills, *Training Ships: The Role of Cadet Vessels in Nautical Education* (Maritime Press, 2015)



commissioned Ships can be adapted for training in marine conservation, offering programs on sustainability and ecosystem management. Ensuring the ship meets safety regulations and standards for educational institutions is crucial. The interiors of the decommissioned ships are to be altered for creating classroom, laboratories for conducting experiments and other training programs. These training ships generate regular income from the students and research projects.⁶²

Regular maintenance is necessary to keep the ship safe and functional for training purposes. Repurposing decommissioned ships as training institutes⁶³ offers a creative and effective way to provide valuable education and skill development, preparing students for careers in various fields while also preserving maritime heritage. Floating training and laboratory ships have access to remote areas or hard-to-access areas of the ocean, enabling studies in less explored regions and for conducting experiments and field study⁶⁴.

Examples:

1. **R/V Oceanus:** Originally a research vessel, it has been decommissioned and serves educational purposes while still being used for scientific studies.
2. **The Floating Lab Project:** Various initiatives have converted decommissioned ships into labs for community-based research and educational programs.
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Repurposing decommissioned ships as laboratories provides valuable opportunities for scientific research and education, fostering a deeper understanding of marine environments and related issues in collaboration and partnership with universities, research institutions, and government agencies.

Floating Housing or Community Spaces:

In some cases, ships are converted into affordable housing, offices, or community centers⁶⁵, particularly in areas with limited space and converted to hospitals during covid-19 and natural calamities.⁶⁶

⁶²Elena M. Garcia, "Challenges and Opportunities for Training Ships in the 21st Century" *Journal of Maritime Technology* (2021)

⁶³John C. Andrews, *Maritime Training and Education: Training Ships in Modern Times* (Elsevier 2016)

⁶⁴Karen M. White, "The Role of Training Ships in Preparing Future Mariners" *International Journal of Marine Education and Training* (2018)



Examples:

USNS Mercy (T-AH-19), USA, Converted to hospital Ship in 1986 (commissioned as a hospital ship)

RMS Queen Mary, USA (Originally UK), Converted to Hotel, Museum, and Temporary Housing in 1967 (converted after retirement)

MS Viking Sky, Norway, Converted to temporary Housing (Post-Crisis) in 2019 (used temporarily for housing in crisis situations)

MV Amadea, Bahamas (Originally Germany), **Converted to** floating housing for refugees **in** 2015 (during the migrant crisis in Europe)

These decommissioned ships converted to serve as hospitals, housing complex and community centers in times of crisis.

The converted ships are funded and maintained by Governments, NGOs and charitable organizations for a special purpose. Careful planning is required for conversion and disposal of the waste. Special care should be taken for collection and disposal of hospital waste as they are highly are hazardous and contaminating.

These converted ships require regular maintenance and supervision, hygiene and sanitation on regular basis to be carried out. Safety and comfort of the inmates is very important.⁶⁷

Cargo Storage or Warehousing: Ships are repurposed as large-scale storage facilities for goods⁶⁸, especially in ports or areas with limited land for warehouses. Cargo ships and oil tankers are suitable for conversion into cargo storages in the port cities.

Precautionary measures are to be taken to protect cargo from climatic conditions, water seepage through holes and leaks, and from rodents, pests and fungi etc.⁶⁹

Ex: SS Ideal X, of USA Converted to floating warehouse in 1950s

USS Pigeon (ASR-21): USA, Converted to floating storage in 1980s

⁶⁵David L. Thomas, *Floating Homes: The Development and Design of Floating Communities* (Routledge, 2018)

⁶⁶ Greg Lindsay, *Floating Cities: A Vision of Future Urban Living* (MIT Press, 2019)

⁶⁷Margaret C. Jones, "Life Afloat: Social Implications of Ships as Housing" *Social Sciences and Urban Studies Journal* (2021)

⁶⁸James H. Barker, *The Maritime Container: A Revolution in Cargo Transportation* (Elsevier, 2018)

⁶⁹Alexander D. Brown, "Floating Warehouses: The Role of Cargo Ships in Supply Chain Management" *Journal of Maritime Transport and Logistics* (2020)



HMS Hermione (F58) , UK, Converted to floating warehouse in Year: 1990s

MSC Napoli, Italy (Operated under the flag of MSC, Mediterranean Shipping Company) Converted to floating storage (Post-Salvage) in Year: 2007

These ships were generally converted after being decommissioned, with some being used for storage purposes in port cities shortly after their service ended.

Repurposing decommissioned ships reduces waste, recycles valuable materials, and opens up creative and practical uses, contributing to sustainability and economic value.⁷⁰

CONCLUSION & SUGGESTIONS :

The main negative impact of the ship breaking is on environmental pollution, health and safety of the workers and concern for human rights. To overcome the negative impacts of the ship breaking this paper suggests alternative uses of the decommissioned ships without breaking or dismantling them. It may not be possible and feasible for converting every decommissioned ship for repurpose. The repurposes suggested in this paper are for achieving sustainability by reusing the vessels as a part of the circular economy, protection of environmental, human rights and health and safety of the ship breaking workers.

This paper offers some suggestions to achieve the objectives of this study. Ship building materials and design should be modified in keeping view of the negative impacts of ship breaking and recycling process for ships EOL. To enhance material recovery while reducing pollution a strong R&D is needed for sustainable recycling technologies. Regular training is to be imparted to workers on ship breaking and recycling process to mitigate the negative impacts. Advanced ship breaking technologies, Artificial Intelligence, robotics are to be adopted in ship breaking and recycling process. Governments should encourage green ship breaking by giving incentives, funding and subsidizing loans. Middlemen and labor contractors are to be eliminated to prevent exploitation of the ship breaking workers. The living and working conditions of the Ship breaking workers should be improved by providing basic amenities, hygienic sanitation facilities, subsidized provisions, free medical facilities, school for their children. Ship breaking workers should be provided with personal protective equipment and training for using them. **(Footnotes)**

⁷⁰John H. Tan, “Cargo Ships as Mobile Warehouses: The Economics of Floating Storage” Transportation Research Part E: Logistics and Transportation Review (2019)

THE PROTECTION OF TRADITIONAL KNOWLEDGE IN INDIA: A WAY AHEAD TO MAINTAIN SUSTAINABILITY



Ms. Shubhangi Gupta*

Abstract

In the current scenario, the world has been facing crises at the expense of growth and development that have impacted the remotest of corners of the world. Despite substantial improvements in indicators like technology, education, poverty reduction, increasing health index, etc., the world faces the burden of depleting natural resources globally to meet these demands of growth and development. This concern often poses a question of sustainability in developing countries like India, which is struggling to manage the complexities of the world because of the mass exploitation of its rich natural resources. In this aspect, it is appropriate to acknowledge the role of traditional knowledge of local communities which forms a criterion for maintaining this ecosystem without recognition and appreciation due to no proper law made to regulate the same.

This paper provides insights on the scenario wherein for the sake of growth and development, there has been an erosion of traditional knowledge in many parts of India. It has been exploited by modern science and technological bodies because of its accessibility and efficacy, specifically the knowledge regarding the treatment of different diseases, medicinal properties, etc. These increasing cases of bio-piracy are threats to the traditional knowledge of the local communities without acknowledging intellectual property rights.

However, the steps taken by the judiciary to protect the traditional knowledge of the local communities via patent laws cannot be neglected. The author by employing the doctrinal methodology of the research has analysed the steps taken by the judiciary in light of the recent judgment M/s. The Zero Brand Zone Pvt. Ltd. v. The Controller of Patents & Designs,

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for the protection of traditional knowledge of local communities via patent laws. The paper also discusses the sufficiency of patent law regarding the same and the need for sui-generis law for the increase of spread and sustainability of traditional knowledge in India.

Keywords: *Traditional Knowledge, Sustainability, Indigenous Community, Patent Law, Intellectual Property Rights*

1. Introduction

Traditional Knowledge can be termed as ‘the knowledge which is developed by the local community of a given area which is transmitted from one generation to another via oral tradition, networks, communal connections etc. for proper resource management.’ The World Bank also defines it as ‘a large set of knowledge, experiences and skills which is developed outside the set of formal educational system’ that people apply to improve and sustain their livelihoods.¹ However, the concept of traditional or indigenous knowledge has different forms, although the meaning may seem synonymous, and it is not restricted to a specific population or community. In the face of growing inequalities in environment around the world, it has been realized that these traditional knowledge systems act as an important key driver for sustainable development- ‘development that meets the requirements of the present without compromising the needs of the future generations.’² It is pertinent to observe that the traditional knowledge and the communities are rich in political, social, economic and natural resources etc, which are pivotal for poverty reduction, better livelihood and maintaining sustainable environment.

Since time immemorial, these indigenous communities across the globe have co-existed with their traditional knowledge and their environment without any appreciation and recognition because its roots are not within formal institutions. It was via United Nations Conference on Environment and Education 1992, the Brundtland Commission that the idea of traditional/indigenous knowledge was worldwide recognized, and its efficacy was appreciated. These events proved that the knowledge should not be restricted to tribal people or traditional communities in a specific area, but it should be used for the sustainable

¹Dr. Senapati Nayak & Smt. Rasika Lonkar, “Indian Indigenous Knowledge System and Sustainability: A Significance Way to Maintain Sustainability” 5 *International Journal of Research Publication and Reviews* 6113, 6112-6118 (April 2024).

²Sustainable Development, The Brundtland Report 41, *available at*: <https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html>



development of the nations across the globe. This knowledge has time and again contributed to cater the environmental problems and ecological crisis at large. It is well established that India is rich in the cultural diversity and indigenous knowledge and over the years, it has developed its own knowledge system which passes on from one generation to another, with this India serves as a repository of traditional knowledge which is rich in all aspects of knowledge systems. Most of the Indian population meets its daily needs from the indigenous environment and the knowledge derived therein. This establishes a very close interconnection between indigenous community and their environment, and they conserve the same for sustainable use.

2. Significance of Traditional Knowledge

Traditional Knowledge connotes collective wisdom, any practices and innovations which are passed on from one generation to another within a particular indigenous community. It covers a wide range of disciplines, comprising agriculture, medicine, heritage, crafts etc. Traditional Knowledge in all these disciplines plays a major role in enhancing efficacy. Some of them have been discussed by the author as below.

2.1. Traditional Knowledge and Agriculture

Traditional Knowledge plays a pivotal role in transforming the biodiversity into bioresources. Biodiversity and associated traditional knowledge are an important strength of the developing countries today specifically in the areas of agriculture and Horticulture.³ Indigenous men and women from past many generations have bred races of several cash crops, food and Horticultural Crops produced out of wild plants of forests known as indigenous varieties and these act as the foundations of the advance and modern approach of plant breeding and global food security. These indigenous communities have identified and some-how managed to develop chain of genes via cross breeding and selection. These genes possess potential traits of pest and disease resistance, high salt tolerance, tolerance to waterlogging etc.⁴ In order to produce these types of crops which can withstand varied climate changes like global warming across agricultural zones, international scientists visit various tropical regions and are dependent on traditional knowledge of the local community or local

³Prof S. Kannaiyan, "Biological Diversity and Traditional Knowledge" National Biodiversity Authority (July 19-20, 2007), *available at*: http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf

⁴*Id* at 6.



farmers and with the help of the blend of traditional knowledge with local varieties of crops, they will be able to produce high yielding crop varieties with a combination of pest and drought resistance which will ultimately contribute in achieving sustainable development goal as well.

2.2. Traditional Knowledge- Health care and Herbal Medicine

A well-developed system flourished in India in the Vedic period around 3000 BC. The medicine system in India, owing to the strong cultural roots is still dynamic and acts as a nucleus for providing the health and livelihood needs to many people in India specifically the tribal and rural communities. As per World Health Organization, it is estimated that 80% of the population in the world have incorporated indigenous system of healthcare at one time or the other.⁵ In current years, these alternative medicines having its basis on traditional knowledge have attained lot of acceptance across the world. In India, the traditional Indian medicines are the traditional systems of healthcare which are practiced in India over decades and still majority of the people are dependent on this method of healthcare. The major traditional system are Ayurveda, Yoga, Siddha, Naturopathy and Unani but there are various other alternative therapies like music, leech, photo, aroma etc in the traditional health care systems which are practiced in India.⁶ Different indigenous communities are having invaluable knowledge of various herbal remedies, healing techniques that have been practiced and refined over centuries. These communities derive these remedies and herbal medicines from different genetic resources. The international market of medicinal products which are derived from the genetic resources is also huge.

The total herbal market across the globe is 201 billion dollars and this market is anticipated to grow at a CAGR of 7.22% from 2024 to 2032 and the worth be 375.60 billion dollars by 2032 and in 2024, it will account to 215.4 billion dollars.⁷ Countries like China and Japan have marketed their traditional medicines abroad successfully, on the other hand, India is still struggling to make its traditional medicines market successfully abroad due to lack of proper mechanism for its protection and recognition.

⁵World Health Organization, *Integrating Traditional Medicine in Health Care*, (Jan. 23, 2023), available at: <https://www.who.int/southeastasia/news/feature-stories/detail/integrating-traditional-medicine#:~:text=More%20than%2080%25%20of%20the,and%20acupressure%2C%20and%20indigenous%20therapies>

⁶Kannaiyan, *supra* Note 3, at 7.

⁷Market Data Forecast, *Global Herbal Medicine Market Size (June 2024)*, available at: <https://www.marketdataforecast.com/market-reports/herbal-medicine-market>



2.3. Traditional Knowledge and Cultural Heritage

Heritage is often associated with the different and distinct identities of our people. It can be bestowed on us by our ancestors and by nature. Heritage can also be defined as traditional knowledge which is the creative production of language, human thought, cultural expressions and craftsmanship which are produced, acquired and inspired, for instance dances, stories, pottery, artworks, ecological, technical and agricultural knowledge and skills which are required to implement these technologies and biodiversity which comprises of animals and plants and microorganisms and varied diverse ecosystem which we have sustained and nurtured.⁸

Indian Cultural Heritage acts as a repository of community celebrations, sacred rituals, indigenous languages and ancestral wisdom. This heritage is required to be preserved as it is a reaffirmation of self-determination, sovereignty and self-determination and it also plays an important role in fostering intergenerational continuity, social cohesion and resilience within indigenous societies.⁹ Cultural Heritage acknowledges the core value of indigenous knowledge system and their contribution to global diversity and sustainable development.¹⁰

3. The Impact of Traditional Knowledge on Sustainable Development Goals

The traditional knowledge in India can contribute significantly to achieving sustainable development goals, specifically goals relating to eradication of poverty (Goal 1) and promoting well-being and good health (Goal 3) in India.¹¹

3.1. Traditional Knowledge and Eradication of Poverty

- a) Traditional Livelihoods: Traditional knowledge system of India comprises of different sustainable practices of livelihood comprising of handloom weaving, small-scale industries, organic farming and handicrafts.

⁸Kannaiyan, *supra* Note 3, at 2.

⁹Simran Kaur Khalsa, IP and Indigenous Communities: Protecting Traditional Knowledge and Cultural Heritage (April 26, 2024, 10:15 PM), *available at*: <https://depenning.com/blog/ip-and-indigenous-communities-protecting-traditional-knowledge-and-cultural-heritage/> (last visited on 09.02.2025).

¹⁰*Ibid.*

¹¹ *The 2030 Agenda for Sustainable Development's 17 Sustainable Development Goals (SDGs)*, *available at*: https://sdgs.un.org/sites/default/files/2020-09/SDG%20Resource%20Document_Targets%20Overview.pdf



Protecting and promoting their traditional knowledge will create more employment opportunities and will uplift the rural economies, thereby leading to reduction in poverty.

- b) Community Based Development: Generation of traditional knowledge lays importance on community cohesion and support system like self-help groups etc., which can be leveraged to empower socially and economically marginalized communities.¹²
- c) Skills Development: Traditional Knowledge comprises of skills like of artisan crafts, sustainable resource management and herbal medicine preparation. Conduction of training programmes can revive and enhance the skills which can enhance the local community's income-generating capacities.
- d) Resource Management: Traditional knowledge of natural resources management like traditional water harvesting techniques, forest conservation practices and sustainable agricultural practices can help in reduction of poverty and ensuring sustainable usage of resources.¹³

3.2. Traditional Knowledge and Good Health & Well-being

- (a) Herbal and Ayurvedic Medicine: Ayurvedic is an ancient Indian system of medicine which promotes holistic health via yoga, lifestyle practices, diet and natural remedies. Mixing these ayurvedic principles with modern healthcare systems can promote well being and reduce the burden of diseases.
- (b) Yoga and Mental Health: Yoga, originating from India, lays importance on physical and mental well-being via beathing techniques, yoga. Promoting yoga can lead to mental health resilience and over all improvement in the well-being of the population.¹⁴
- (c) Nutrition: Traditionally Indian Diets are nutritionally rich, so promoting indigenous food systems can cater to the problem of malnutrition and improve the overall health outcomes.
- (d) Environmental Health: Traditional ecological knowledge promotes the relationship between nature and human, which is important for well-

¹²Sangita Pramanick & Jayanta Mete, *Impact of Indian Knowledge Systems on Sustainable Development Goals* (2024), available at: <https://www.kdpublications.in>

¹³*Ibid.*

¹⁴Khalsa, *supra* Note 9.



being. Practices like conservation of forest and organic farming can contribute to sustainable health and clean environments.¹⁵

4. A Menace of Biopiracy

It is often termed as violation of rights of traditional and indigenous communities over their traditional knowledge and biological resources. The consequences of the biopiracy are economical and ethical as well. For instance, obtaining IPRs namely Plant Breeders Rights or patents garner monopoly control over the biological resources, traditional knowledge related to it, or commercial products which are produced based on their knowledge or resources. Once an IPR is acquired by a bio pirate, the original holders of that traditional knowledge are barred from deriving any commercial benefit out of the same, resulting into a scenario where a community will not be able to sell an indigenous product that is covered by an IPR.¹⁶ The sole monopoly is vested with the IP holder in regards to the use of the IP protected knowledge, which implies that the indigenous communities who are the original holder would have no right over the traditional knowledge or resource.¹⁷

Another major problem which the indigenous community faces is in relation to bioprospecting, an investigation of biological resources for new commercial uses for economic, social and global development. The problem in relation to bioprospecting is when it leads to biopiracy or environmentally unsustainable practices like collection of huge quantities of different samples from an area. This terminology 'bioprospecting' over a period has acquired a very negative aspect and is often used in a sense which implies that bioprospecting will necessarily lead to biopiracy and often the indigenous community find bioprospecting offensive reason being that it seeks to exploit the biological resources commercially and related traditional knowledge which are sacred or which the basic support for their livelihoods.¹⁸ There are number of instances where biopiracy was exercised and the same was opposed by the indigenous communities of India.

4.1. Case Study- Neem

Neem (*Azadirachta indica*), a very common and famous tree species of India with high medicinal value and due to its high medicinal value, numerous patents

¹⁵*Id* at 190.

¹⁶Kannaiyan, *supra* Note 3.

¹⁷*Id* at 4.

¹⁸*Id* at 5.



were also filed taking this attribute as the base of the invention. This led to a huge uproar amongst the Indian users who refused to accept and challenged the two patents- (a) “to a European Patent Office- patent for fungicidal effects of neem oil (Patent No. 436 257 B1) owned by W.R. Grace & Co., and (b) to the US patent for a storage- stable azadirachtin formulation (Patent No. 5124349) also owned by W.R. Grace.”¹⁹ In the year 2000, these patents were revoked by EPO because of the lack of invented step and novelty. Patenting Neem had a very substantial socio-economic impact as all the urban, rural, semi-urban indigenous communities are aware of neem’s health benefits. Indigenous and heterogeneous communities were also equivocal for the opposition of patenting neem by an American Company.²⁰

4.2. Case Study- Rosy Periwinkle

This is another very famous case study where biopiracy was exposed against an American Company Eli Lilly, a Pharma Company established in Arizona in 1876. It is a plant which is grown in the region of Madagascar. In 1950, researchers of this pharma company heard about the medicinal properties of this plant and collected samples from Madagascar. The researchers isolated the samples and tested the components namely vincristine and vinblastine, as unearthed from the indigenous experts of the region.²¹ In this whole process of testing, they identified alkaloids which can be proved very effective in treating childhood leukaemia with its success rate been 90 percent. In this year itself, the company started marketing it and started to earn profits namely for vincristine for the company. The natives who belonged to Madagascar and who originally identified the medicinal value and properties of Rosy Periwinkle, never received any share in the profits earned by the company because of lack of efficiency in the laws for benefit sharing.²²

4.3. Vulnerability to Biopiracy and Traditional Communities

Various traditional and indigenous communities are vulnerable to biopiracy because they don’t consider their crops, livestock from forests, seeds and related knowledge as private property but as property which belong to all

¹⁹Shambhu Prasad Chakrabarty & Ravneet Kaur, “A Primer to Traditional Knowledge Protection in India: The Road Ahead” 42 *Liverpool Law Review* 406 (2021)

²⁰*Id* at 407.

²¹*Ibid*.

²²William Fisher, “David L. Lange Lecture in Intellectual Property: The Puzzle of Traditional Knowledge” 7 *Duke Law Journal* 1511–1578 (2018).



in general. For majority of indigenous communities, the concept of private ownership of these natural resources are alien to them which also is one of the factors which is hindering the fruits of IPR from them. These indigenous or traditional communities are ignorant about their laws and the existing IPR regime, and even if the law is known to them, they lack power to enforce these laws for preventing biopiracy or get some form of agreement of benefit-sharing, because of the factors like illiteracy, lack of financial resources and low social status.²³

5. Protection of Traditional Knowledge- An International Regime

5.1. The Convention on Biological Diversity (CBD, 1992)

The Convention recognizes the importance of traditional knowledge and the inherent objective of biological diversity at a global level which plays a very important role from indigenous people's perspective and the traditional communities. This Convention provides recognition to the rights of the countries via the provisions of Article 8(j) which elaborates the provisions for the maintenance of the benefits which arises by the protection of traditional or indigenous knowledge.²⁴ There are various other provisions of CBD as well which protect the traditional knowledge of indigenous communities and their biodiversity, for instance "Article 10 (c) – 'Encouraging and protecting customary use of the biological resources as per the traditional cultural practices which are compatible with the requirements of sustainability and conservation', Article 15 (1)-' Authority to determine the access resting with national government' and Article 15 (2)-' Each contracting party shall facilitate- tribal knowledge, life and biodiversity' in such a way that the accessibility of genetic resources for environmentally sound uses by different contracting parties and non-imposing restrictions that can be counter to the aims and objectives of CBD."²⁵

5.2. World Bank

As per the World Bank, operational directive 4.20, 1991, "The identification

²³Kaur, supra Note 19, at 5.

²⁴Lakshmi Priya Vinjamuri & Rajesh Bahuguna, "Legal Protection of Traditional Knowledge for Environmental Sustainability – A Study in India vis-à-vis International Context" 17(2) *Asian Journal of Environment & Ecology* 28-36 (2022)

²⁵Secretariat of the Convention on Biological Diversity, UNEP Montreal, Convention on Biological Diversity- Texts and Annexes (2011), available at: <https://www.cbd.int/doc/legal/cbd-en.pdf>.



of Indigenous peoples can be done in specific geographical areas by the presence in differing degrees of the following facets-

- Attachment to ancestral territories and to the natural resources in these areas,
- Self-identification and identification by others as members different from cultural group,
- Indigenous language distinct from national language,
- Presence of customary social and political institutions, and
- Primarily subsistence-oriented production.”²⁶

5.3. International Labour Organization Convention

ILO Convention on Indigenous and tribal people is one of vital instruments in relation to indigenous peoples and was adopted in 1989.²⁷ “The International Labor Organization’s Convention in relation to tribal and indigenous peoples in independent countries which differentiates between indigenous and tribal people, highlighting the significance of self-identification²⁸-

- I. (a) Tribal peoples in independent countries whose economic, social and cultural conditions distinguish them from other parts of the national community, and whose status is regulated partially or in toto by their own set of customs or traditions or by special laws or regulations;
- (b) Peoples belonging to independent countries, often referred to as indigenous on account of their descent from the populations which inhabited the country, or a geographical area to which the country belongs, at the time of colonization or the establishment of current state boundaries and who, irrespective of their status, retain some or all of their own cultural, political, social and economic institutions.
- II. (b) Self-identification as indigenous shall be regarded as a basic criterion for determining the groups to which these provisions of this convention are applicable. The importance and significance of trees and plants in these indigenous people’s life is not restricted to economic viability and advantage but is ingrained in traditional, cultural perspective for preserving the age-old tradition of these people in an area.”²⁹

²⁶The World Bank Operational Manual, 1991.

²⁷IFC, Environmental, Health, and Safety Guidelines, 2007, *available at*: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines.

²⁸Bahuguna, *supra* Note 24, at 30.

²⁹*Ibid*.



5.4. United Nations Declaration on The Rights of Indigenous People, 2007

“Article 26 of this declaration clearly states that indigenous people have the right to own, develop and use their land, air, water, coastal seas and other resources which they have traditionally owned or occupied. This comprises the right to complete recognition of their customs, laws and traditions for development and management of resources and the right to effective measures by States to prevent any interference with encroachment upon these rights.”³⁰

“Article 27 states that indigenous people have right to the restitution of the lands, resources and territories which they have traditionally owned or occupied or damage without their free consent. In situation where this is not possible, they have right to get fair and just compensation. Unless otherwise freely agreed upon by the concern people, compensation shall take the form of lands, resources and territories equal in size and quality.”³¹

6. Sui generis Legislation and other Initiatives to Combat Biopiracy- India

Sui Generis means something exclusively and customized for a specific jurisdiction. Sui generis legislation came into force to cater the issue of traditional knowledge. The incorporation of traditional knowledge and IPR were not simple, to make this happen, two concepts evolved; a) Amending the current IPR laws and make required changes to inculcate traditional knowledge and its derivatives, and b) To come with a suitable legislation for promoting and protecting traditional knowledge within IPR.³² The jurisdictions within World Trade Organization have made requisite alterations in their legal system for accommodating traditional knowledge within the IPR regime. India inculcated traditional knowledge by amending the current IPR laws and creating new ones. As a matter of practice, the responsibility of protecting the traditional knowledge globally vests upon WIPO of WTO who are then occupied with the responsibility for TRIPS to make strategic changes to accommodate

³⁰United Nations Declaration on the Rights of Indigenous Peoples, 2007, art. 26.

³¹*Ibid.*

³²Bahuguna, *supra* Note 24, at 410. Justus Wanzala, “Kenya works with communities on Genetic Resources and Traditional Knowledge Protection”, *Intellectual Property Watch*, (February 17, 2017), *available at*: <https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>.



traditional knowledge and traditional cultural expressions.³³ The legislations that India came to protect traditional knowledge in India are “The Geographical Indications of Goods (Registration and Protection) Act, 1999”,³⁴ “The Biological Diversity Act, 2002”,³⁵ and the “Protection of Plant Varieties and Farmer’s Rights Act, 2001”.³⁶

The Sui generis systems per se have been significant in protecting traditional knowledge in most of the jurisdictions. However, WIPO was originally responsible for the protection of traditional knowledge and traditional cultural expressions worldwide. The absence of any law for the same from WIPO has been lately felt by WIPO, that is why WIPO came up with WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge in the WIPO Diplomatic Conference 2024 for giving protection to traditional knowledge and associated traditional knowledge (discussed in the later part of the paper).

6.1. Sui generis Strategies Developed in India to Protect TK

Initially, WIPO was working on complex and intertwined positions but was not able to arrive at any scientific conclusion in this relation.³⁷ Paris and Berne Convention, highlights that IP is territorial in nature. “The extraterritorial application of this public domain would attract the same rules that is in relation to extraterritorial application of IP and other laws.”³⁸ The Sui generis strategies that initially developed in India, witnessed activism to protect traditional expertise from being patented in Europe and America. The controversies pertaining to Neem and basmati created enormous pressure for more simplified sui generis protection of traditional knowledge.³⁹

6.2. Traditional Knowledge Digital Library (TKDL)

This was one of the strategies which was developed by government of India to combat biopiracy and it took around eight years to materialize the same

³⁴The Geographical Indications of Goods (Registration and Protection) Act, 1999 (Act 48 of 1999).

³⁵The Biological Diversity Act, 2002 (Act 18 of 2003)

³⁶The Protection of Plant Varieties and Farmer’s Rights Act, 2001 (Act 53 of 2001)

³⁷ Fisher, Supra Note 22 at 1554.

³⁸Ruth Okediji, “Traditional Knowledge and the Public Domain” Centre for International Governance Innovation Papers No. 176 (2018), *available at*: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3202976 (last visited on 20.12.2020).

³⁹Bahuguna, supra Note 24, at 411.



and enhancing the efficacy. Traditional Knowledge Digital Library or TKDL was established with the aim of incorporating a list of codified traditional knowledge practices in India. This list comprises of more than thirty-five thousand formulations of medicines and are available online to cater requisite information to trademark and patent examiners in prospective jurisdictions offices, refraining them from the grant. The data in this list is available in five UN languages namely French, German, English, Spanish and Japanese.⁴⁰ After this establishment of TKDL, there has been a significant decline in the cases of biopiracy and trivial filing of patent applications in relation to Indian Systems of Medicines (ISM).

But amidst this positive development abroad, a major loophole was detected. It was found that the Patent Office in India granted various patents on ISM, turning a blind eye on TKDL.⁴¹ After a review of such cases dating back to 2005, it revoked various patents granted which violates traditional knowledge. Later an agreement was signed by TKDL with IPO on similar lines of EPO and various patent offices of Australia, Canada, UK, US etc. As a result of the same, there has been a great economic impact on the local pharma industry in India. This success of TKDL, led to changes by WIPO. The International Patent Classification (IPC) of WIPO adopted the Traditional Knowledge Resource Classification System (TKRC), a unique TKDL classification system. “The International Patent Classification (IPC), established by the Strasbourg Agreement 1971, provides for a structure in hierarchy for independent language symbols for patent classification and utility models as per different strata of technology to which they pertain, ad a new version of the IPC enters into force each year on 1st January.”⁴²

Another major success was the identification of around 1155 biopiracy claims at different IPOs by the team of TKDL.⁴³ As a result of the same, many of them were restrained legally from same malpractice. Thus, TKDL turned out be very successful defensive process for stopping biopiracy, as

⁴⁰Id at 413.

⁴¹Chidi Oguamanam, “Towards a Tiered or Differentiated Approach to Protection of Traditional Knowledge (TK) and Traditional Cultural Expressions (TCEs) in Relation to the Intellectual Property System” 23 *The African Journal of Information and Communication* 1 (2019).

⁴²Harvey Brooks, “The relationship between science and technology” 23(5) *Research Policy* 477–486.

⁴³Sen, Saikat & Raja Chakraborty, “Revival, modernization and integration of Indian traditional herbal medicine in clinical practice: Importance, challenges and future” 7 *Journal of Traditional and Complementary Medicine* 234–244 (2017).



they carry on their efforts to improvise their database of 150 books, on the areas like Ayurveda, Siddha, Yoga and Unani.⁴⁴

6.3. National Innovation Foundation (NIF)

Apart from TKDL, NIF is another pioneer which proved to be successful in protecting and promoting traditional knowledge. NIF comprises of team of experts which involves in facilitating the knowledge holders for protecting their innovation as per the current IPR regime. They also provide support for the conduction of prior art searches and patent filing to people who are not aware of the legal intricacies that their TK may possess with their miraculous knowledge. NIF was established in the year 2000 by the Department of Science and Technology in order to prevent biopiracy and IP protection of TK and its ancestral knowledge and the credit for the same must be given to eminent Professor Anil Gupta of IIM, Ahmedabad. NIF has helped substantially in the last two decades from its establishment for protecting traditional knowledge.⁴⁵

6.4. The Biological Diversity Act, 2002

This legislation mandates the formation of Biodiversity Management Cells at local bodies of all levels significantly for biodiversity conservation. A Public Biodiversity Register is prepared by BMC which covers all the information on the knowledge of biological resources and its availability in their jurisdiction and also their medicinal or any use in relation to traditional knowledge associated with them.

6.5. The National IPR Policy 2016

This policy recognizes that the monetization of knowledge is not a part of Indian culture but also contends that it is not compatible with the global regime and calls for converting knowledge into intellectual asset for which economic reward could be attained via commercialization.

6.6. Indian Knowledge System

Ministry of Education's Indian Knowledge Systems innovative cell is located at AICTE, New Delhi. It's aim is to advance the interdisciplinary study of all aspects of IKS and conserve the same for use in future for research

⁴⁴*Ibid.*

⁴⁵Bahuguna, *supra* Note 24, at 414.



and societal applications. It is also aimed at disseminating nation's rich cultural heritage and traditional knowledge in the fields of arts, management, architecture, agriculture etc.

7. Recent Developments for Protecting Traditional Knowledge

7.1. WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge

This WIPO Diplomatic Conference culminated in a treaty which is representing a consensus on the base material in comparison to the critical examination of the requirements of developing nations rich in traditional knowledge and genetic resources.⁴⁶ This treaty which avoided this conundrum for decades, now has marked shift in the IP landscape.⁴⁷ The general perspective of this treaty shows light that traditional knowledge should transition from being community held to being patented and globally shared via disclosure of source of its origin. An underlying aspect lies in the prioritization of innovation and patents over the issue of disclosure of traditional knowledge and genetic resources.⁴⁸

This treaty's major objective is to rectify the issue of erroneous patents which used associated traditional knowledge and genetic resources as basis.⁴⁹ This aligns with the Indian approach according to the patent law, especially Section 10(4)(ii)(d), prompting questions in relation to its application at the international level and among the CBD countries in the upcoming decades.⁵⁰

⁴⁶WIPO, Diplomatic Conference to Conclude an International Legal Instrument Relating to Intellectual Property, Genetic Resources and Traditional Knowledge Associated with Genetic Resources, (May 2024), available at: https://www.wipo.int/edocs/mdocs/tk/en/gratk_dc/gratk_dc_7.pdf.

⁴⁷*Traditional Knowledge, Traditional Cultural Expressions & Genetic Resources Laws*, available at: https://www.wipo.int/tk/en/databases/tklaws/search_result.jsp?subject=&issue=&country/

⁴⁸WIPO Director General Daren Tang's Opening Speech, Diplomatic Conference on Genetic Resources and Associated Traditional Knowledge, (May 13-24, 2024), available at: https://www.wipo.int/export/sites/www/about-wipo/en/dg_tang/docs/dg-opening-speech-tk-dipcon-13052024.pdf

⁴⁹*Explanatory Memorandum*, Recommendation for a Council Decision Authorizing the Opening of Negotiations on an International Legal Instrument Relating to Intellectual Property, Genetic Resources, and Traditional Knowledge Associated with Genetic Resources, (Jan. 1, 2024), available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52024PC0003>.

⁵⁰The Patents Act, 1970 (Act 39 of 1970) s. 10



This treaty can pose challenges for India, majorly due to its compromises in access and benefit-sharing relations with disclosure of origin of genetic resources and associated traditional knowledge. These access benefit sharing links are important for ensuring that the indigenous communities and countries giving genetic resources receive equitable benefits for their use.⁵¹ Considering India, a complete analysis is required, taking into account two diverse scenarios, India achieving the status of top innovation country, leveraging its vast traditional knowledge and biodiversity to development and research. In the second scenario, where Indian patents have less demand in the international market, the treaty imposes additional burdens without the appropriate benefits. This could lead to stifle of innovation and disadvantage position of Indian stakeholders.⁵²

7.2. Case Study - M/s.The Zero Brand Zone Pvt. Ltd. v. The Controller of Patents & Design

In this case M/S The Zero Brand Zone Pvt. Ltd. appealed against the order for the rejection of the patent application for the “eco-friendly lamp comprising of Panchagavya having a combination of leaves which are used in the traditional herbal medicine”.⁵³ The Court made observations that the objective of section 3(p) of this act is to prevent the monopoly of traditional knowledge comprising the known properties of traditionally known components. Further observations were made that traditional knowledge is not defined in the Act and went ahead with relying on the definition given by WIPO and UNESCO.

Section 3(p) prohibits the patent grant based on claimed invention/process comprising traditional knowledge directly or in effect.⁵⁴ This provision lacks clear judicial interpretation. However, the Madras High Court noted that objective of Section 3(p) is not to stifle inventions formed based on traditional knowledge but to hold that patents that may be granted to those inventions if they establish that process or product can no longer be, in effect, traditional knowledge.”⁵⁵ And their lies a problem with the term “in effect”. There is

⁵¹Dr. Anson CJ, *WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge: Concerns of India and Developing Nations- Part II*, (June 3, 2024), available at: <https://spicyip.com/2024/06/wipo-treaty-on-intellectual-property-genetic-resources-and-associated-traditional-knowledge-concerns-of-india-and-developing-nations-part-ii.html>.

⁵²*Ibid.*

⁵³CMA (PT) No.146 of 2023.

⁵⁴The Patents Act, 1970 (Act 39 of 1970) s. 3(p)

⁵⁵Vishno Sudheendra & Kevin Preji, *Traditional Knowledge in Patents: Need for Clarity and Interpretation*, Aug 24 2024, available at: <https://spicyip.com/2024/08/traditional-knowledge-in-patents-need-for-clarity-and-interpretation.html>.



no clarity in this term, and it lacks judicial interpretation. But TKDL and its principles can be referred for evaluation or clarity in such scenarios.

However, these guiding principles are restricting themselves to medicinal traditional knowledge and plants but there are no specific guidelines for those facets falling outside the purview of plants and medicinal TK, for instance like that of Panchagavya Lamp.⁵⁶ Thus, there is a need for providing clear, comprehensive guidelines and judicial interpretation to mark the corners of patentability of innovative traditional knowledge.

8. Conclusion and Suggestions

India being rich in the cultural diversity, ethnicities and knowledge makes it a repository of traditional knowledge and practices developed by the different traditional communities. Traditional Knowledge has been playing a pivotal role in deriving benefits from medicinal properties of plants, enhancing the agricultural sector of the economy and preserving cultural heritage of the economy. The impressions on the same has been seen in various instances, prominently medicinal properties of neem, medicinal value of turmeric etc. But these traditional knowledge and practices in past few years are subject to the menace of bio-piracy which makes the situation of traditional communities more vulnerable as the scientists and researchers takes advantage of their knowledge and environment and the commercialize the same without recognizing the rights of the indigenous communities and proving any share of profits to them.

Although, efforts are taken for the protection of traditional knowledge at international and national level. Internationally, various conventions are formed to protect the traditional knowledge and nationally India has developed sui generis mechanism to protect the same, but still the efficacy of the same is questioned and the rights of traditional communities are not fully recognised. Recently, WIPO culminated a treaty Intellectual Property, Genetic Resources and Associated Traditional Knowledge which mentions a clause about the full disclosure of genetic resources which in turn could be beneficial on one hand for India but on the other hand could stifle innovation and could be disadvantageous for the Indian stakeholders. In the recent judgement of The Zero Brand, the Madras High Court laid down the lack of clarity on the provision, Sec 3(p) of the Patents Act, 1970 and TKDL guidelines. Thus, there are initiatives taken by WIPO internationally and by Indian Government nationally but still there is a need to have a separate piece of legislation for governing traditional knowledge of indigenous communities do that it can be used sustainably and be beneficial for the whole of the economy.

⁵⁶*Ibid.*

KNOWLEDGE ACTION GAP BETWEEN MOUNTAIN ECOSYSTEM & CLIMATE CHANGE POLICIES FOR LEGAL RAMIFICATION OF ENVIRONMENTAL LAWS IN UTTARAKHAND



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Abstract

Mountains are the repository of fresh air, water, forest and biodiversity. Countries across the world have large areas of land covered by mountains, and their resources are becoming more and more important for sustainable development. Nonetheless, national strategies rarely take into account the unique difficulties associated with growth in the mountains. The biggest perpetrator to the Mountains ecosystem is Climate Change. It is anthropogenic phenomena resorting to deplete the Mountain ecosystem. This problem has become peculiar, and the solutions are harder to adhere. The inadequacies of the appropriate framework, and the actual application differ, regrettably the rate at which global authorities are disclosing information. Different states have different perspectives, there are drastic differences between the shortcomings of a robust foundation and real implementation. Uttarakhand a newly formed 'Mountain State' is limited in financial resources, but abundant in Natural resources. Governance is an important aspect in a problem-solving situation of the contemporary political & environmental world. The present paper will review the statute of Mountain Ecosystem and Climate Change in terms of International, National & Local Governance. It will study the foundation laid down by "United Nation Framework Convention on Climate Change" (UNFCCC) and will proceed towards "Conference of Parties"

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(COP) 28 agendas for Climate change and its trans-border effects. International instruments like Alpine Convention, “Carpathian Convention”, Ch13 Agenda 2 of Earth summit, and few other such instruments can be a study base for empowering the Governance in Uttarakhand for mitigating Climate Change and framing the mountain laws for protection of the environment in Uttarakhand. The Forest research Institute and Uttarakhand State disaster management authority, are some hidden gems working as a silent warrior. These warriors need to be consolidated with certain inclusions and resonance with foreign conventions. Local laws like “Uttaranchal Contingency fund Act” 2001, and “Uttarakhand Anti Littering and Anti Spitting Act” 2016, are helpful legislations but they require careful revisions. The present study will showcase a Knowledge Action Gap between Mountain Ecosystem and Climate Change policies by harmonizing state and federal legislation through trans-border information exchange in the legal, scientific, economic and technical domains. This paper will also focus on bringing public consciousness by creating an ecological world with sustainable development for present & future generations.

Keywords: *Mountain Ecosystem, Climate Change, Sustainable Development.*

INTRODUCTION

Uttarakhand, the 27th State of Indian Union was formed on the 9th of November, 2000. Uttarakhand is also termed as “terai” region which signifies lowland regions. The combination of low-lying mountains and high snow-peaked mountains adds to its complexity and beauty.¹ Uttarakhand is also known as Land of Gods (Dev Bhoomi). Had its own blessings and disguises. In recent years, the state of Uttarakhand has experienced a number of devastating occurrences, including floods, landslides, and cloud bursts. One major factor contributing to the deterioration of mountains is climate change. Every year that goes by, brings more disasters to the young Himalaya due to Climate Change. It leads to flash floods, unavoidable and exceptional rainfall, and, tragically, glacial lake eruptions that worsen them. It destabilizes delicate ecosystems on a massive scale and deprives individuals who are extremely susceptible to a variety of social and economic issues. Reviving its legal structures and policies is currently imperative and a necessity. As conditions

¹Kavita Tariyal, “Climatic fluctuations in Uttarakhand Himalayan region and resulting impacts” A review. Archives of Agriculture and Environmental Science, 124-128 (2017)



change and the relative importance of legal, social, and economic requirements shifts, so does the common law. New ideas are introduced, and new laws have an impact on non-statutory law. The common law's strength lies in its capacity to grow and formulate laws for the pressing need.² The paper focuses Legal strata of Mountain Ecosystem and Climate Change. It will highlight the detailed International, National and local policies of each respectively. The study will further enlighten the Knowledge action gap between the two. Henceforth the paper details the suggestive ramification of environmental laws for Uttarakhand State.

(A) THE MOUNTAIN ECOSYSTEM

The National Biodiversity Action Plan of India outlines the three components of the mountain ecosystem. (1) Himalayas, they are vividly expanded mountain ranges of India (2) Western Ghats, they are distinct ecological ranges, this region is considered with locations that are the hottest of biological diversity in the world, it is due to its exceptionally high levels of endemism and biological diversity. (3) Aravalli are the oldest mountain system in India and form the southern boundary of the central highlands.³ The Himalayan range where Uttarakhand subsides is the primary focus of this research. The Mountain ecosystem needs a multifarious attention, compiling deep-seated efforts with Governmental arrangements. All concerned nations, civil society organizations, indigenous peoples, and farmer's organizations must participate in the international community's thorough discussion of the crucial governance issue in a manner that is blatantly democratic, multilateral, open, and accountable.⁴ Mountain specific international, national and local instruments are studied hereunder.

(I) INTERNATIONAL GOVERNANCE,

The European nations have been active contributors in formulating the conventions. "On issues including a European component, however, the Treaty is like a wave that is coming in. It rises the rivers and enters the estuaries. There is no stopping it.

²A.T.M.Smith, Glanville Williams: Learning the Law, 124 (Thomson Reuters, London, 16thed.,2016)

³<https://www.cbd.int/doc/world/in/in-nbsap-v3-en.pdf> (last visited on October 26, 2024)

⁴Mike Hulme, Can Science fix climate change? A case against Climate Engineering, 85 (Polity Press, Cambridge, 1sted.,2014)

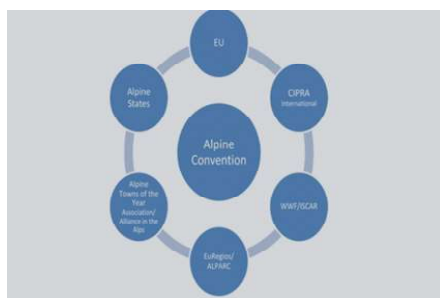


Fig 1. Institutional Arrangements in Alpine Convention⁷

The Treaty will now be a part of our legislation, according to a proclamation by Parliament. It has the same legal weight as any statute.”⁵ The Alpine Convention, the initial international pact dealing with the mountain range in Europe. The snow clad peak with mesmerizing flora and fauna are the shelter of many living inhabitants of the European countries, for protecting its sanctity, the convention was signed in Salzburg (Austria) on 7th November 1991.⁶ The Convention ensures Cooperation in statute, technology, research & finances for the development of participant countries.

The diagram shown above exclaims that the convention fits perfectly for the task predetermined to be solved by Governance Arrangements. “International Commission for the Protection of the Alps (CIPRA)” is an independent organization working for no profits, formed since 1952 for the Alps’ conservation and equitable development”.⁸ The convention has a research committee termed as “International Scientific Committee on Research in the Alps (ICSAR)”.⁹ “Permanent Committee” is the governing entity of the Alpine Conference. The Permanent Secretariat gives administrative assistance to its member countries for channelizing the convention and its protocols. Alpine Town of the year is an event to encourage local inhabitants and promote development. The Alpine State is a symbol of harmony between the populace and the government. The Alpine Convention was also a forerunner in the

⁵H.P. Bulmar Ltd Vs Bollinger SA& ORS (1974) EWCA Civ 14

⁶<https://www.fao.org/4/y3549e/y3549e14.htm#TopOfPage> (last visited on September 19, 2024)

⁷Johannes Buhl, “The Alpine Convention and New Modes of Governance: The Alpine Convention as evidential support for New Governance Arrangements” Marie Curie Chair in Public Policies, Charles University Prague 4 (2011)

⁸<https://www.cipra.org/en/topics/alpine-politics/alpine-convention> (last visited on September 19, 2024)

⁹<https://iscar-alpineresearch.org> (last visited on September 21, 2024)



implementation of the Agenda 2030. It is the first example of a global application of the Sustainable Development Goals (SDGs), having existed long before the United Nations established them in 2015.¹⁰ “Framework Convention on the Protection and Sustainable Development of the Carpathians”, joins seven “Carpathian” countries in an unprecedented partnership for collaboration and multisectoral policy for their mountain development . It is a platform for creating and carrying out international policies, programs, and projects for safeguarding and sustainably developing the area. It is also an open forum for public and stakeholder participation.¹¹ In Rio Declaration Mountain agenda was elaborated in Chapter 13, detailing that the global ecosystem depends on mountain settings, a significant ecosystem that reflects the intricate and interconnected ecology of our world.¹² “Regional Act No.15” on interventions concerning the protection, the development and improvement of mountain territories (Act No. 12 of 2002). Protecting the environment, preserving soil, and boosting economic activity in mountainous regions are some of the goals of this mountain policy.¹³ Within the act the Regional Council will specify the overarching objectives in the Development Plan of Mountain Areas under art.3. Additional provisions address the allocation of local entities’ competencies in this area. Specifically, Mountain Communities are responsible for carrying out administrative duties related to agriculture under art.5. It calls for the creation of the Regional Fund for Mountains under art.7. and also creates the Standing Council for Mountains under art.6. It also has a unique information system pertaining to mountain regions under art.8. Additional clauses address the supply of subsidies in certain production areas, including forestry, agriculture, and zoo-technics. An act might help other mountain nations. Nonetheless, the environment in the mountains is changing quickly. They are vulnerable to landslides, increased soil erosion, and the quick loss of genetic variety and habitat. On the human side, there is a loss of traditional knowledge and pervasive poverty among people living in the mountains. As a result, environmental degradation is occurring in the majority of mountain regions

¹⁰<https://www.alpconv.org/en/home/convention/framework-convention/> (last visited on September 27, 2024)

¹¹<http://www.carpathianconvention.org/convention/framework-convention/> (last visited on September 20, 2024)

¹²https://www.iau-hesd.net/sites/default/files/documents/rio_e.pdf (last visited on September 21, 2024)

¹³<https://leap.unep.org/en/countries/it/national-legislation/regional-act-no-15-interventions-concerning-protection> (last visited on August 12, 2024)



worldwide. Therefore, prompt action is required to ensure the sustainable oversight of mountain development and the socioeconomic advancement of the populace.

(II) NATIONAL INTROSPECTION

National laws create the framework for the laws that govern a nation, establishing standards and regulations for social interactions and governance. In terms of the Indian Constitution the following Articles have enunciated the term Environmental Constitutionalism. “The State endeavor to safeguard the environment, protecting the forests and wild life of the country.”¹⁴ “Firstly, by relying upon the Directive Principles of State Policies imbibed under art.48A and art.51A(g) the Constitution has to maintain, preserve and promote the environment, to have empathy for all living things and to preserve and enhance the natural environment, which includes the forest, lakes, rivers, and wildlife.”¹⁵ “Dr Ambedkar responded to art.32 in the Constituent Assembly by saying, “ If I had to choose just one article of the Constitution as the most crucial—one that would render the entire document meaningless without it—I would only mention this one.” This statement resonates with the foundation of everything that the constitution has laid down. It is the essential and fundamental part of the Constitution. In addition to enforcing fundamental rights, a High Court may issue these writs to remedy any further injury or illegality brought about by infringing the law.”¹⁶ “The interpretation of art. 48A. and art.51A(g) must be based on art.21. which states that “No one may be dispossessed of their life or freedom unless a statutory procedure is followed. Any disruption of the fundamental components of the environment—soil, water, and air—that are essential to life as defined by art.21. of the Constitution would be dangerous to life.”¹⁷ Indian legal strata are at deficiency to give legal protections to the mountains hence they acknowledge Mountains under Forest acts. “The Indian (Forest) Act of 1927” includes the laws concerning taxes applied on timber and supply chain of forests goods. “Forest Conservation Act 1980”, was passed with the intention of preventing additional deforestation. “Forest Right Act (FRA) 2006” discusses how the nation’s

¹⁴The Constitution of India, art 48(A).

¹⁵M/S Khandelwal Paper Industries vs. Rajasthan State Pollution Control Board and ORS, (S.B.Civil Writ Petition No. 11299/2022)

¹⁶Durga Das Basu, Introduction to The Constitution of India, 152-153(Lexis Nexis, Gurgaon, Haryana, 26th ed.,2022)

¹⁷M.C. Mehta v. Kamal Nath (1997) 1 SCC 388



persistent colonial-era forest laws have weakened the rights of populations that live in forests (such Scheduled Tribes) over land and other resources throughout time. “The Compensatory Afforestation Fund Act, 2016”. In the Supreme Court ordered that a compensation afforestation fund to be established. The fund’s primary uses would be plantations, forest protection, wildlife conservation, and other similar initiatives.”¹⁸ “The National Mission for Sustaining the Himalayan Ecosystem” seeks to improve knowledge of the climate and the Himalayan ecosystem. It also contributes to sustainable development in the region and works to preserve a delicate ecosystem.¹⁹ One of the mission’s approaches involves sharing knowledge with South Asian states and others who belong to the Himalayan ecosystem. Such missions must be valued and carried out with discipline.

(III) LOCAL INTROSPECTION

Local laws function as a way to codify cultural norms and ethics by reflecting the values, beliefs, and priorities of a society. Uttarakhand “The Uttaranchal Contingency Fund Act, 2001” has been formulated under Clause (2) of “(art.267) of the Constitution to cover unforeseen expenses. The Fund is at the discretion of the Governor of Uttarakhand. The Local Government can withdraw Five hundred crores from the Consolidated fund and can use it further under the said act.²⁰ Agriculture Produce Marketing Act, 2011(Uttarakhand) s.61A(1) states that the “Revolving Fund” established to use money for the promotion, acquisition, and processing of organic and traditional agricultural products grown in the state’s mountainous regions. Under s.62(2). Kendriya Mandi Fund to be utilized for the following purposes, namely- (b) development works in the hilly areas.²¹ “Uttarakhand Anti littering and Anti Spitting Act, 2016”. s.3(i) refers to the term “public place” which means any public highway, street, road, hillside, drain, etc. “Offences” define under s.4 Any person who dries or desecrates any article of food or any article or thing in any public place is an offence under s.4. The Authorities like the urban local body or authorized officer are define under s.5, they may

¹⁸T.N. Godavarman Thirumulpad Vs Union of India [Writ Petition (Civil) No.202 of 1995]

¹⁹https://dst.gov.in/sites/default/files/NMSHE_Mission_document.pdf (last visited on September 12, 2024)

²⁰https://highcourtofuttarakhand.gov.in/files/Contingency_Fund_Act,_2001.pdf (last visited on September 12, 2024)

²¹https://www.indiacode.nic.in/handle/123456789/5033?view_type=browse (last visited on September 13, 2024)



order to remove the litter under s.5. “Any person who contravenes the provisions of this act shall be punished under s.9 with such fine, as per the local Government”.²² Pollution on Mountain is a matter of concern and pathos. The said legislation is not strong enough to punish the offender as the act symbolizes with penalty as determined by the state government. Forest Department in Uttarakhand is responsible for managing some of the diversified forests and divergent nature in India. “The Van Panchayat -Due to the indiscriminate deforestation of civil forests, the Van Panchayat Act of 1931 gave the villagers the authority to control forest use within their borders by following certain guidelines and being supervised by the Revenue Department”.²³

(B) CLIMATE CHANGE

According to “United Nations framework convention on climate change” UNFCCC, art.1(2). “Climate change” is alteration in the atmosphere due to human initiatives, whether immediate or incidental that influences the global atmosphere and harnesses the natural climate shifts over regular time spans.²⁴ City dwellers endure & damages the environment more by greenhouse gas emissions, and are causing greater global warming than their rural counterparts. “The power plant that emits poisons into the air depends on the people who use the energy it produces. Therefore, how much a plant belches depends on how much energy we use in cities. Cities need to lead the way in combating climate change because they are its main contributors as well as the victims of climate change.”²⁵ Climate change, acidification, the use of fossil fuels for energy, resource depletion, smog, ozone layer depletion, and other forms of toxicity are all indicators of environmental deterioration.²⁶ “Intergovernmental panel on Climate Change” 1988, is a joint effort of “World Meteorological Organization”, & “United Nation Environment Programme”. In year 1990, three Working Groups of the IPCC presented their “First Assessment Reports to the Second world climate conference”.²⁷ “The court held that

²²<https://highcourtofuttarakhand.gov.in/pages/display/296-uttarakhand-acts> (last visited on August 24, 2024)

²³Satyajit Singh, “Diverse property rights, institutions and decentralisation: Forest management by village forest councils in Uttarakhand,” 32 Policy and Society 43–59 (2013)

²⁴<https://unfccc.int/resource/docs/convkp/conveng.pdf> (last visited on 28 August, 2024)

²⁵Michael Bloomberg and Carl Pope, *Climate of Hope*, 17 (St. Martin’s Press, New York, 1st ed., 2017)

²⁶Aashif Morgan & HBA Hunter, *Sustainable Cities-Realities Vs Dreams*, 135 (Knowledge Bakers, Pune, 1st ed., 2024)

²⁷J. Jaeger and H.L. Ferguson (eds.) *Climate Change: Science, Impacts and Policy*, 56 (Cambridge University Press, Cambridge, 1991)



India is confronted with several urgent short-term issues that directly affect the right to a healthy environment, especially for indigenous and vulnerable communities. When states detect the optimal effects of climate change, they feel driven to adhere to environmental protection and sustainable development for welfare of the current and future generations”.²⁸ There are several repercussions of climate change that have exacerbated the climate and disrupted economies worldwide.

(I) INTERNATIONAL INTROSPECTION

Human being ignorant and negligent of environmental damages. This ignorance has lead us to ecological imbalances caused due to uncontrolled use of mineral, fossils fuels, deforestation, pollution of air, water, soil and Mountains. This has given rise to untapped emission of greenhouse gases, it has resulted in ozone depletion and caused Global warming. “The 1972 United Nations Conference on the Human Environment in Stockholm was the first world conference to prioritize environmental issues”.²⁹ The Stockholm Declaration promoted monetary growth and the decrease of air, water, and ocean pollution, with a focus on welfare for people. In 1985, “The Vienna Convention for the protection of the Ozone” 1988, was universally ratified in 2009 by each participating nations.³⁰ The convention deemed as a *peremptory norm* with no derogation and had universal acceptance. The Convention’s creators hoped that by sharing information about how human activities affect the ozone layer, policymakers would take action against those activities that cause ozone depletion. “The Montreal Protocol on Substances that Deplete the ozone layer”1987, aims to preserve the ozone layer by gradually eliminating the compounds that cause it to thin.³¹ Ozone-depleting compounds are produced and consumed as part of this phase-out plan. The ozone layer is nearly fully recovered because of the cooperation of nations worldwide.

²⁸MK Ranjitsinh And Ors. v. Union of India And Ors [WP (C) No. 838/ 2019]

²⁹[https://www.un.org/en/conferences/environment/stockholm_1972#:~:text=The%201972%20United%20Nations%20Conference,the%20environment%20a%20major%20issue.&text=One%20of%20the%20major%20results,Nations%20Environment%20Programme%20\(UNEP\).](https://www.un.org/en/conferences/environment/stockholm_1972#:~:text=The%201972%20United%20Nations%20Conference,the%20environment%20a%20major%20issue.&text=One%20of%20the%20major%20results,Nations%20Environment%20Programme%20(UNEP).) (last visited on 25 August, 2024)

³⁰<https://ozone.unep.org/treaties/vienna-convention> (last visited on 17 Sep, 2024)

³¹<https://ozone.unep.org/treaties/montreal-protocol#nolink> (last visited on 17 Sep, 2024)



Non-Article 5 parties		Article 5 parties – Group 1		Article 5 parties – Group 2	
Baseline	Average HFC for 2011–2013 + 15% of HCFC baseline*	Baseline	Average HFC for 2020–2022 + 65% of HCFC baseline	Baseline	Average HFC for 2024–2026 + 65% of HCFC baseline
Freeze	–	Freeze	January 1, 2024	Freeze	January 1, 2028
10* per cent reduction	January 1, 2019	10 per cent reduction	January 1, 2029	10 per cent reduction	January 1, 2032
40* per cent reduction	January 1, 2024	30 per cent reduction	January 1, 2035	20 per cent reduction	January 1, 2037
70 per cent reduction	January 1, 2029	50 per cent reduction	January 1, 2040	30 per cent reduction	January 1, 2042
80 per cent reduction	January 1, 2034	80 per cent reduction	January 1, 2045	85 per cent reduction	January 1, 2047
85 per cent reduction	January 1, 2036				

Fig 2: The Targeted reduction of Hydrofluorocarbons (Greenhouse Gas)

The above data has been taken from UNEP Programme, stating the average reduction of Hydrofluorocarbon from 2011–2013 and demarcating its targeting reduction timeframe from 2024–2047. For Belarus, Kazakhstan, the Russian Federation, Tajikistan, and Uzbekistan, there is a baseline of 25% HCFC, along with two different initial steps: (1) a 5% reduction by 2020, and (2) a 35% reduction by 2025. India has been considered in Group 2 for the targeted reductions.³² “The United Nation Framework Convention on Climate Change” UNFCCC, was formed to achieve the stabilization of greenhouse gas concentration exclaiming that Climate Change is an anthropogenic interference. The convention work with the principle of “common but differentiated responsibilities and their specific national and regional development priorities”.³³ Impart legal education & public awareness regarding Climate Change. (Conference of Parties) A statutory body with a representative of a member country to meet and discuss the climate crisis and its mitigations. The Financial mechanism ensures the projects addressing the Climate change policies & programmes and settles disputes through negotiations and peaceful means, if fails then resort to International Court of Justice. “Recently COP 28 (Dubai, 2023) underscored world’s efforts to address climate change was too slow, countries to respond to accelerate action by 2030. Authorities are being asked to accelerate the switch to energy from sustainable sources like solar and wind replacing petroleum and coal in their

³²Ozone Secretariat, Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer “14th edition (2020) ISBN: 978-9966-076-79-3, available at: <https://ozone.unep.org/sites/default/files/Handbooks/MP-Handbook-2020-English.pdf> (last visited on August 16, 2024)

³³<https://unfccc.int/gesc?q=UNFCCC%20CONVENTION%20PDF#gsc.tab=0&gsc.q=UNFCCC%20CONVENTION%20PDF&gsc.page=1> (last visited on August 22, 2024)



upcoming phase of climate commitments”.³⁴ The Kyoto Protocol 1997 explains “common but differentiated responsibility and respective capacities,” for nabbing developed nations as they are the reason for the present high levels of greenhouse gas emissions in the atmosphere. The protocol introduced three mechanisms to control emissions. 1. Global Emission Trading which means the entities that are part of the emission, permits or allowances are sold or allocated. 2. The CDM, or Clean Development Mechanism means while the developing nation would acquire the funding and clean technologies to carry out the project, the developed nation would gain credits for reaching its emission reduction goals. 3. Collaborative execution means countries working together to gradually reduce emissions.³⁵ The Paris Agreement 2015 aims to restrict the global average temperature to 1.5°C, over pre-industrial levels and to keep it below 2°C.³⁶ “Paris Agreement” employs a five-year timeline for countries to share their action plans, & “Nationally determined contributions” (NDCs). India pledged to boost forest carbon storage by raising the country’s forest cover from 21% to 33% as part of its Paris Pledge. A one-day initiative to plant fifty million trees in Uttar Pradesh, the most populous state in the nation, served as the program’s distinctive India big-bang. India’s forests will eventually store an extra 14 gigaton of carbon if it meets its target. India is not the only country with aspirational plans to restore its forests. Kenya has declared its intention to reforest 9% of its total land area.³⁷ When it comes to this pressing problem, international rules have been genuine and significant.

(II) NATIONAL INTROSPECTION

India introduced its “National action plan on climate change” 2008, outlining its national strategy for sustainable development. “National Mission on Strategic Knowledge for Climate Change” aims for sustainable development and include planned actions against greenhouse gases.³⁸ The Mission is one of the eight national missions that plan national climate action strategies. India needs more stringent regulations.

³⁴<https://unfccc.int/cop28/5-key-takeaways> (last visited on September 21, 2024)

³⁵Usha Tandon, *Climate Change Law, Policy and Governance* 18-19 (Eastern Book Company Publishing Pvt. Ltd, Lucknow, 1st ed. 2016).

³⁶<https://unfccc.int/process-and-meetings/the-paris-agreement> (last visited on August 26, 2024)

³⁷Supra note 25 at 208-209.

³⁸https://dst.gov.in/sites/default/files/NMSKCC_mission%20document%201.pdf (last visited on August 28, 2024)



(III) LOCAL GOVERNANCE

Local government has a special role in providing a variety of services to the public directly, it has the closest ties to the local environment and community. This enormous advantage of proximity guarantees that decision-makers and their choices are in line with community interests and effectively address local conditions and opportunities.³⁹ According to s.14(1). of the “Disaster Management Act” 2005, the “Uttarakhand State Disaster Management Authority” was established. The State Climate Change Centre, Uttarakhand was proposed long back but is still undergoing for an upgrade as it is in public domain.⁴⁰ “Disaster Mitigation and Management Centre (DMMC) Aims for disaster mitigation and management, protecting the environment and the community from the destruction brought on by disasters”.⁴¹ The centre operates under the Department of Disaster Management, Government of Uttarakhand, aims to in still a sense of value in the general public and government officials so they may better formulate policies and bolster their capacity to handle all facets of disaster management. It serves as a nodal agency for organizing, coordinating, and overseeing efforts pertaining to resilience, administration, prevention, and preventing catastrophes. The involvement of the Non-Government Organization and other civil society organizations in the legislative action has grown on the part of governments. Many non-profit organizations have been vocal and uprooted for the protection of mountains. Wake up Trust, Uttarakhand, Sam Earth India, Sankalp Taru Foundation, Suvidha NGO are some NGO’s working for Animal Rescue, Tribal communities, green planet through Plantation, women farmers to promote organic farming are some initiatives undertaken to prompt and protect the environment with sustainability.

KNOWLEDGE ACTION GAP

In terms of biogeography, mountain regions are among the most susceptible to environmental deterioration. Thus, a key component of mountain regulations should be their protection. However, in reality, safeguards for mountain ecosystems are typically found in related texts of forest legislation. Mountains & Climate Change to be included in the definition of Environment and to be imbibed as a ‘Legal Entity’. Pollution control boards to rigorously help state legislation in formulating regional policies in mitigating Climate Change & Mountain Ecosystem policies. International Legal Solution to be inculcated

³⁹Supra note 35 at 119

⁴⁰<https://forest.uk.gov.in/climate-change> (last visited on November 5, 2024)

⁴¹<https://dmmc.uk.gov.in/pages/display/2-about-us> (last visited on November 15, 2024)



by the government. “United Nation Environment Programme” (UNEP) has been working for more than 50 years to address pressing environmental concerns. The concern includes restoring the ecological economy in collaboration with UN agencies, the commercial sector, governments and community groups. It can built such network for India to benefit Uttarakhand and other alike mountain countries. Ukraine launched intergovernmental negotiations for the Carpathian countries in 2003. The goal was to develop an agreement on the Carpathian Mountains that would be accepted by countries with the objective of “Right of Nature equivalent to Right to Life: A Protocol on Right to Nature in UNFCCC empowering the principle of “common but differentiated responsibility and respective capacities” (CBDR-RC) as an agenda in COP will be an effective component for Environmental Jurisprudence. Government should consider & advocate such principle. Granting legal protection to nature and making it illegal to violate, such rights will instantly help to alleviate the consequences of climate change on the mountain environment. The Right of Nature is a field that needs to be investigated, particularly in light of the fact that the human rights paradigm has not produced practical solutions to the issue of climate change affecting mountain ecosystem. One of the main factors in establishing and fortifying the Alpine Convention was CIPRA, a non-governmental and non-profit organization. In Uttarakhand Forest Department & Forest Research Institute along with various NGO’s like Wake up trust, Sam Earth India, Sakalp Taru foundation, Suvidha NGO can channelize their resources. Collaboration between Govt & non- Government Organizations can also help in construing a strong mountain ecosystem infrastructure gardening the Mountain ecosystem & combating the consequences of Climate Change. All these factors can help in bridging the knowledge action gap on Climate Change impacting Mountain Ecosystem and bringing International Legal Solutions.

LEAGL RAMPIFICATION OF ENVIRONMENTAL LAWS IN UTTARAKHAND

Local Legal Mechanism -Uttaranchal Contingency Fund was formed to provide a Contingency Fund for the State. The Mechanism to utilize the fund has never been relished. Uttarakhand a land of Mountains where Natural Disasters are inherent entity. The state has witnessed severe earthquakes, cloud burst, avalanches, landslides etc. The said act needs an open access system to the people for funds availability & their disbursements. This act safeguards the Mountains from natural calamities and disorders, but the



disbursement and utilization of funds through a legal mechanism is a big loophole in the said act.

State Climate Change Centre -Uttarakhand's State Climate Change Centre is still undergoing for an upgrade. It has been put in public domain since years, the centre needs to be construed soon. The right to be immune to the detrimental effects of climate change was recently acknowledged by the Supreme Court as a separate constitutional right.

Natural Disaster Insurance Scheme- A disaster is defined as an event or sequence of events that result in casualties, harm people and property causes destruction to the ecosystem, infrastructure and vital services. It exceeds the ability of the impacted community to be recovered. Natural Disaster Insurance Scheme can shield the layout of our mountain state. State government flee to Central government at the occurrence of a natural calamity. The delayed allocation of funding results in unfortunate circumstances for the victims and their relatives. Such an insurance plan will allow the state to become self-sufficient in terms of natural disasters and tragedies.

Consolidated legislation “The Mountain Laws”: Protection of Environment in Uttarakhand- The promotion of a single mountain legislation that addresses climate change and sustainable development will be aided by a consolidated mountain law. By creating procedures for cooperation and information sharing between national and international institutions working on fragile ecosystems will create a foundation of knowledge and understanding. This will help state government to create laws that support the sustainable use of natural resources and local communities' involvement for the overall development.

CONCLUSION

Environment is a congenital world for the entire human race. One of the primitive structures given by Environment are Mountains. They are home to a vivid range of glaciers, wildlife, diverse communities, traditions, and languages. Mountains are vulnerable to the biggest threat termed as “Climate Change”. We can protect our mountain state's layout using the Natural Disaster Insurance Scheme. In times of natural disaster, state governments seek refuge with central government. The unpleasant situations that befall the victims and their relatives are caused by the delayed allocation of funding. With the help of such insurance scheme the state will be strong & independent in confronting such tragic natural disasters. The goal of this research is to create a legal framework through a governance arrangement by combining Uttarakhand's



local law, national law, and international treaties. This study will uniform, the scattered working bodies under consolidated legislation to safeguard Uttarakhand & its habitants. With these endeavour, the distinctive Mountain ecosystems of Uttarakhand are to be preserved while still meeting the demands of economic development. The “One Mountain” all-solution theme has the potential to bring departments together and improve ease and openness for Uttarakhand’s government and people.

WOMEN IN INDIAN ENTREPRENEURSHIP AND INNOVATION; ISSUES & CHALLENGES



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Mr. Amit Kumar***

Abstract

In the present scenario women are dominating the field of innovation, technology, science and entrepreneurship but even today there exists a significant gap before females can achieve parity with men. The present paper attempts to trace the historical role of women in entrepreneurship through review literature survey and the challenges to female participation in the field of innovation in STEM (Science, Technology, Engineering and Mathematics) fields in India in the emerging economic scenario. In the present study the survey revolves around a round table discussion with the recognized and distinguished women academicians, entrepreneurs and scientists as well with respect to the barriers and challenges to the participation of women in the field of Indian entrepreneurship and innovation and the ways in which it could be facilitated.

Keywords: *Entrepreneurship, Innovation, Science, Technology, Women Entrepreneurship, Gender, Commercialization.*

INTRODUCTION:

In the present scenario when it comes to the development and progress of entrepreneurship and innovation the role of gender becomes prominent. Most of the studies have applied gender based lens to study the innovative measures

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taken from the end of females for instance, filing of patents. However, most of the striking findings of the study on the topic reflects a number of initiatives taken by the women with respect to innovation and entrepreneurship but still there exists a wide gap when it comes to parity with men in the same field. Report on women innovation suggests that females will not be able to reach parity with men when it comes to filing the patent till 2092. Hence, there is a need to understand the reasons behind these disparities and the influence of these disparities on women in general and society at large. At the same the study delineates the possible solution to the problem.

The study is more important in advanced contemporary society where the majority of the dominant fields be it innovation, technology, entrepreneurship, science and many other fields are exclusively being dominated by women as a current initiative taken the Indian Government. The paper proposes to review the literature and then proceed with the panel discussion on related topic and issues in the context of Indian society.

The lower is the participation of women in innovation and technology the larger it has socio-economic implications. Studies reflect that around 90% of the women spend an additional income attained on human resources for the families only. Health, education, nutrition are in all included in and this ratio is very low as compared to men. If the proportion of women be more in entrepreneurship and as innovators it will directly impact the families, communities and society at large positively.

The second immediate and direct influence is that of the creation of job. Survey conducted by Global Entrepreneurship monitor in 2012 indicated that in totality 126 million women are either starting a new business or running the same. Whereas 98 million of them are running an established business. Out of these 112 million of women entrepreneurs employed one or two people while 12 million of them expects to hire up to six people in the next forthcoming years which clearly indicates a total of 72 million jobs. Thus, gender disparity in innovation and entrepreneurship represents lost prosperity and developmental growth. Countries facing larger proportion of gender gaps in labor force participation incurs a wide loss of income i.e. around 30% of GDP per capita. It is for this reason that reducing the gender gap and encouraging female entrepreneurship are essential for the economic growth and development of the nation thereby reducing the proportion of poverty in any country.¹ With

¹T. Tambunan, "Women entrepreneurship in Asian Developing Countries: Their Development and Main Constraints" *Journal of Development and Agricultural Economics* 27-40 (2009)



the help of these entrepreneurial activities women not only create vocations for themselves but generating employment for others as well thereby producing income for the sustenance of their families and communities. By generating employment women not only gain economic autonomy but they are serving the markets with valuable services and products as well. They simultaneously reduce the level of social exclusion and contribute in the economic prosperity.

As the discussion revolves around women in the field of innovation, it is necessary to take into consideration the barriers faced by women entrepreneurs which limits their entrepreneurial potential. Some of the prominent factors include a) Issues pertaining to gender-based cultural constraints specifically in the countries like India b) lack of access to capital c) lack of knowledge regarding the resources d) In developing economies lack of education e) No knowledge of markets e) lack of knowledge regarding business and no technical knowledge f) dearth of knowledge regarding communication and technology, be it internet or social media.

OBJECTIVES OF THE SYUDY:

1. To explore the case studies related to women innovation and entrepreneurship.
2. To understand the ways in which the entrepreneurship results in growth and success of the enterprise.
3. To throw light on the barriers faced by women in the field of innovation and entrepreneurship.

HISTORICAL PERSPECTIVE: It was the pioneering work of Danish Ester the Economist that brought to light the role of women in economic growth and development who for the first time conducted an evidence-based studies on the impact of the development projects on the women from diverse societies finding that the females in the third world are all excluded from the benefitsof these advanced technologically delicate programs. Historical data has been mined through several studies with a view to examine the economic activities and entrepreneurial activities of female in previous times across various economies of the world.

As per the description of historical data a major barrier to women entrepreneurs had been that they were not having the legal rights on their property and on their own earnings and thus they were unable to participate in trade or enter in business agreements without the prior permission of their husband. Until the adoption of married woman's Property act in 19th century in United States and United Kingdom that they don't have any right to inherit



property or control over their earnings. Simultaneously she faced external barriers too including lack of access to training, lack of access to education including negative stereotypes and cultural restrictions against the participation of women in commercial sector.

However, women in the era of 18th and 19th century in Latin America, Europe, United States, United Kingdom were active in some of the spheres like holding patents, share, operating business etc.² Some of these activities were exclusively feminine for example, 19th century Corset Industry observed women not merely as consumers but manufacturers and inventors as well. Women patented their innovations in this realm and utilized them as the foundation stone of flourishing businesses. The female patent holders of the era were somewhere motivated by the market incentives just like their present day counterparts. So far as the analysis of United States in 19th century is concerned with respect to women innovation, data highlighted that more than 500 number of females were patented with more than one discovery and many of them gained income out of these discoveries. A crucial contribution to this level of activity came from the emergence of property laws protecting the individual property rights of females. States which incorporated property laws saw a higher proportion of patents which clearly indicated that legal reform has the capacity to boost the participation of women in innovation and discoveries. Adding to the same, the family firms had been a crucial source of encouraging commercial activity in women permitting them to yield a far better influence than actually have been possible.

Research Methodology: An Inductive approach has been used in the study. Case study approach has been utilized as a research strategy. Research on women innovators and entrepreneurship is documented through case studies. Case study is method of choice in the study when the phenomenon is not much distinguishable from its very context and its very complex to de-contextualize the enterprises without seeking voluble information. It is for this reason that case study methodology has been utilized in this study The second reason is to understand the viewpoint of indigenous people and for the purpose qualitative tools including interview and group discussions are more feasible than the actual surveys. The women entrepreneurship ventures which are in the initial stage of its development should be documented for the purpose so that one could establish the relationship for the qualitative studies. The

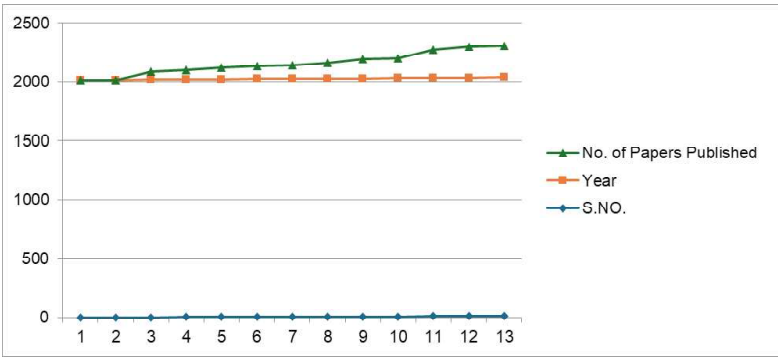
²Womenable, "Innovation and Women's Entrepreneurship: An Exploration of Current Knowledge to United Nations" *Conference on Trade and Development* (2010).



study also takes into account the number of papers published in Scopus Database, Web of Science and Reputed Journals from the Year 2014 t0 2022

Table No.01

S.NO.	Year	No. of Papers Published
1	2012	67
2	2013	83
3	2014	100
4	2015	111
5	2016	115
6	2017	131
7	2018	165
8	2019	170
9	2020	237
10	2021	260
11	2022	266
12	2023	265



Source: Trends of Publication

CASE STUDIES:

1. Deepanvita Chttopadhyay: CEO and Chairperson of IKP Knowledge park. She has been the first to develop life science and for the first time laying the foundation of developing innovative and sustainable knowledge cluster on the basis of public and private partnership model.



What are the career options for females in the field of entrepreneurship and innovation

Today a large number of women are working in multinational organizations and various other corporations who are simultaneously working on innovation programs but the number of women entrepreneurs in the field of technology is comparatively lesser. She further said that out of total number of 100 entrepreneurs funded by them, merely 07 are females, out of 400 interactions, only of 20 were women.

Are there incentives for Innovation.

On being asked it was stated that she was not sure whether there are such policies or not. But certainly she had her own observances; however there is an incubator for women in Chennai but at the same time, they focus more on low hanging fruits that is their emphasis is more on lower technology instead of focusing on high level of technological innovation and entrepreneurship. She further stated that she saw many working women who took a break from their career with a view to take training in IPR and in drafting of patents. Technology Information, Forecasting and Assessment Council (TIFAC) which has been established by Government of India aimed to set directions for technological advancement in India has become one of the most crucial organizations.

2. Case Studies: Soft Toys creation by Phoenix

A young and enthusiastic woman from Chorward, Saurashtra from the country itself had a hobby of making toys in the beginning, later on it transformed into the skill of puppet making but then she converted these skills into a business. For her business does not aim at maximization of profit rather she wants to do something for society as well through women education, art and empowerment. With her innovations she converted the idea into a business, became entrepreneur and provided job to others. The case study also assumes that with alterations in demand conditions like technology, demography, cultural as well as political institutional frameworks create certain opportunities which are not obvious to all but are exploited because only some particular individuals have the opportunity to discover these specific opportunities. There is thus a need to unleash the power of women entrepreneurship with a view to make the society and economy sustainable. But this a great irony that the traditional measures of development of economy and performance of business do not at all capture the real transformational benefits of the change inducing



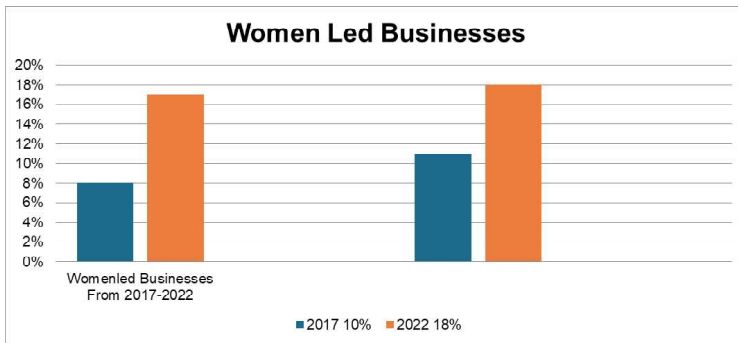
enterprises. It is to be noted that innovation is higher in growth-oriented firms where the owner’s motivation and intent plays a key role in firms innovation behavior. In the present case study it was the motivation and intent which gave the success and growth to women entrepreneur.

3. Creation of Rinki from a housewife to a business woman

This is the case history of a women who not only sustained her familial but societal norms too and made her aspirations convert into reality. Rinku Lakdawala who is from a Gujrati family has five siblings is from a very modest financial background who always tried to update herself in terms of education, technology and manufacturing practices. She started her business as a dress designer from her husband’s garage. In the beginning she had only hand embroidery work but later on diversified it into machinery wok as well. At present her unit consists of 7 automated machines. However, there is a cut throat competition in the field because of her continues investment in manpower and technology she is able to attain great heights. In the advanced society creativity, innovation as well as the design of product has become the key to success. Without proper market segmentation and focused orientation on profit-oriented market it is difficult to attain the success results. Thus, facing all these challenges Rinku became the most popular women entrepreneur of Surat, Gujarat. In the year 2012, she was awarded with Savani Women Entrepreneur Award. As a woman she explored new avenues of economic participation. She has proved that women are capable enough to be a successful women entrepreneur as men are.

Table No. 02: Businesses led by Women Increasing in India; Startups fueling India’s Growth

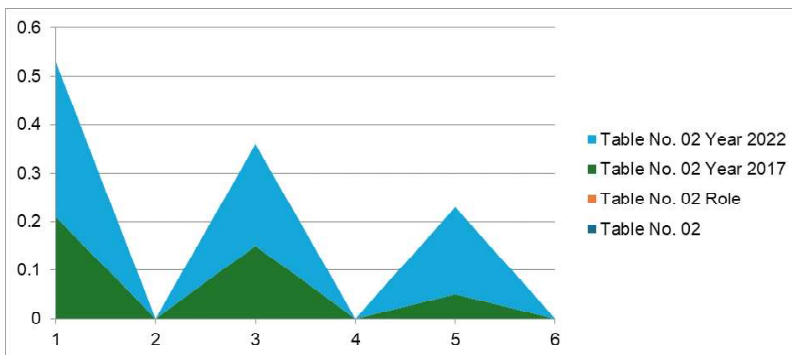
Women led Businesses From 2017-2022	2017	2022
	10%	18 %
	8 %	17 %
	11 %	18 %



Source: *Businesses led by Women Increasing in India; Startups fueling India's Growth from 2017- 2022*

Table No. 03: Women in Senior Role in Start- ups

Women in Senior			
Roles in Start- Ups	Role	Year 2017	Year 2022
	Women Managers	21%	32%
	Women Directors	15%	21%
	Women Founder CEO	5%	18%



Source: *Women in Senior Role in Start- up*

Women Innovators at Global Level:

4. Case Study of Cristina Junquieria: Cristina Junquieria, the cofounder of Nubank is a woman entrepreneur in finetech space. However, she was from Engineering background but she herself paved the way for management consulting and acquired the job of credit card portfolio at one of the recognized banks of Brazil. With a view to bring about a revolutionary change in the economic field. She introduced an eco-friendly app which provided digital financial services to more than 53 million of people in Latin America. This bank is one of the biggest banks of the world providing digital baking platform



to the public. Her contribution in the finetech industry as a women entrepreneur has been recognized by Fortunes 40. In most of the finetechmagines she is being recognized as the strongest start- up founders in Latin America.³

5. Case Study of Diane Von Furstenburg: Dian is a fashion designer, a social worker. A philanthropist and a chairman of the company. In the year 1974, Von designed a dress which became an epitome of women empowerment and later on became a global trend. She is recognized as a leader who has empowered women and supported women leaders throughout the globe. In the year 2010, she laid the foundation of DVF awards to provide the grants to women who have been the personification of women empowerment, leadership and strength. She was the one who chaired the session of Fashion Designers of America from year 2006 to year 2019. In the year 2005, she was awarded the Lifetime achievement award in the year 2016 she was awarded the Swarovski Award for bringing about positive change. Presently she is associated with Ellis Island Foundation.

6. Case Study of Annabelle Huang: Huang has been a student at High School STEM in China to having her honors in Math's from Carnegie University. Today she is a leading figure in block chain. In the year 2018. She took a leap of faith in the world of crypto currency with a viewpoint to transform the finance with the help of block chain technology.⁴ At present she is the managing partner at Amber group which is one of the leading global digital asset platforms having 12 offices operation 24/7 in 06 continents. Huang has been a prominent speaker at Dubai block chain summit, TOKEN2049 London, Yahoo finance and Coindesk. At a global level she is the mentor of Female Entrepreneurs Incubators who mobilizes women to be a part of crypto currency industry.

Barriers faced by Women Innovators and Entrepreneurs:

1. Barrier of Technological Advancement: Participation of women in labor-force is comparatively very low. Active participation of women in labor market and employment reflects women's contribution and level of economic activity. It indicates pool of percentage of women

³Candida G. Brush and Sarah Y. Cooper, "Female Entrepreneurship and Economic Development: An International Perspective" *Entrepreneurship and Regional Development* 1-6(2012).

⁴Anju Malhotra, Sidney Schuler, and Carol Boender, "Measuring Women's Empowerment as a Variable in International Development" *Gender and Development Group of the World Bank* 81-88 (2002).



laborers to potentially turn into an innovation.⁵ Not only in India, but across the globe the participation of women in workforce is too less. The global female labor participation rate is merely 48.5% in the year 2018, and in case of men it reached to 75%. Most of the women when work is very less likely to be in a position which could lend them to any kind of innovation. In most of the developing countries women often to entrepreneurship not out of choice but it is conditional that is to support their families as an additional source of their earning and income. It is this type of pattern which will influence the performance of females in business else in developing countries there are is more probability for them to uphill climb in making their innovative potential more successful and viable.

2. **Lack of Childhood exposure to Businesses:** The possibilities of children becoming inventors vary with particular characteristics like birth, race, gender and socio- economic class as well. It is the lack of exposure to the field of innovation which clearly explains the fact that why the talented children from lower income groups, minorities, females have a lesser chance to become inventors and innovators. All these lost contributors might have given valuable contribution had they been introduced to innovation earlier.⁶ At the same time if females be exposed to inventions and innovations, the problem of gender gap in the concerned area would have halved to till date.
3. **Representation of Women in Science, Technology, Engineering and Mathematics is too Low:** The representation of women in STEM is very low which is one of the key reasons behind gender disparity in the field of innovation as well as patenting. It is a well-known fact that as the STEM degrees increases the proportion of patenting increases as well. Women are under- represented in such fields and study which are rich in innovation. It is for this reason that a major pool of women who could turn to innovation are turned down which makes the gap wider.⁷ Today women outnumber men

⁵U. Premalatha, “An Empirical Study of the impact of Training and Development on Women Entrepreneurs in Karnataka” *The IUP Journal of Soft Skills* 44-59 (2010)

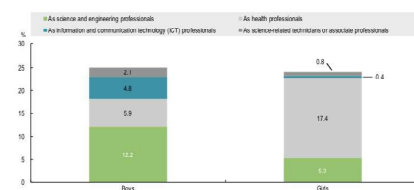
⁶N. P. Singh, P. Sehgal, M. Tinani, and Sengupta, “Successful Women Entrepreneurs – Their Identity, Expectations and Problems: An Exploratory Research Study” *Research Report Serial Two, NIESBUD/MDI Collaboration*, New Delhi (2011).

⁷A.A. Jahanshahi, & B.K. Pitamber, “Issues and Challenges for Women Entrepreneurs in Global Scene, with Special Reference to India” *Australian Journal of Basic and Applied Sciences* 4347-4356 (2018)



so far as UG Degree and PG is concerned but there are very few women for whom areas like innovation matters. Number of females in scientific fields is still at tertiary level that is just 30- 47 percent and most of them are under- represented in computer science, engineering and manufacturing. Report by OECD reflects that the career path of most of the females diverged immediately after the age group of 15. i.e. though women aspire to start career as an innovator and scientist at the age of 15 but only 20 percent of the total aspirants out of 100 graduated in ICT fields.

4. Rigid Socio- cultural norms, sexism and open discrimination a barrier in the success of women:
 - a) Women who are solo in the team are often isolated.
 - b) It is the macho culture, rigid social norms which hinders STEM based careers.
 - c) The expectations of gender resulting from gender roles of females related to reproduction and domestic jobs significantly effects the progression of women.⁸
 - d) Bias in giving promotion or hiring the employees.
 - e) Lesser contacts with industry.
 - f) Lack of access to public funding



Notes: ICT = information and communication technology. OECD PISA 2015 asked students what occupation they expected to be working in by the time they reached the age of 30. Students could enter any job title or description in an open-entry field; their answers were later classified according to the International Standard Classification of Occupations, 2008 edition (ISCO-08). These coded answers were used to create an indicator of science-related career expectations, defined as those whose realisation requires the study of science beyond compulsory education, typically in formal tertiary education. Within this large group of science-related occupations, the following major groups were distinguished: science and engineering professionals; health professionals; science technicians and associate professionals; and ICT professionals.

Source: OECD. 2018. Empowering Women in the Digital Age.

Policies Framed in India:

- Start Up India Program; The program was initiated in February 2016 and by the end of the period it became the biggest start- up program across the globe which provides academic industry partnership, incentives and funding support. In order to build a strong ecosystem

⁸K. Surti, & D. Sarupriya, "Psychological Factors Affecting Women Entrepreneurs: Some Findings" Indian Journal of Social Work 1 287-295 (2005)



a corpus fund of 10,000 has already been embarked with a view to nurturing start ups and innovation. For women led start ups around 10% of the funds are reserved. These reservations act as a catalyst to create a hostile environment for start – ups and innovation to flourish.

- Economic Empowerment of Women Enterprises & Start- ups by Women in association with German Based Development Authority: The initiative is taken by Ministry of Skill Development and Entrepreneurs which provides different accelerating programs for the women entrepreneurs who aims at starting business at small scale.
- Cluster Development Program for micro level enterprises: The Ministry of MSME (Ministry of Micro, Small and Medium Enterprises) of Government of India has initiated cluster development approach is a planned strategy to enhance the productivity as well as capacity building in the country at small and micro level enterprises. It comprises of cluster of enterprises located at differential geographical regions for the purpose of producing complementary , similar products which can easily connected with a common physical infrastructure facilities which can help in addressing the common challenges. The main motive of the scheme is to support the sustainability, demand and growth of MSE's by bringing into focus the common issues related to skills, technology, market access etc.⁹ It also includes creation of self- help groups, consortia, setting up of faculty centers. In all the programs women Owned enterprises is given consideration.
- Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE): The main aim of this scheme is to make collateral free credit to the small enterprises. The new and existing enterprises both are covered under this scheme. The scheme provides around 200 lakh credit facilities to the borrowers provided they provide credit facilities without the guarantee of third party. For small enterprises the guarantee cover is of 80% for all the small enterprises. If there is any default the claim is settled down by the trust which is up-to 75% of the amount in the default of the credit facility extended by lending an amount of 200 lakh.

⁹R. Vishwanathan, “Opportunities and Challenges for Women in Business” *India Together* 1-9 (2001).



- Exhibition for Women under Promotional Package for Small Enterprises with a view to marketing support: In order to encourage women entrepreneurs to have active participation in International Exhibitions, there are some provisions including business and economic class fare for one female representative and a shipping cost of up to 1500 is reimbursed at the same time.

Recommendations:

1. Increase to the access of critical resources especially funding.
2. Those socio- cultural issues should be addressed which inhibits the innovative potential of women.
3. Activities like teaching, collaborations and networking should be promoted.
4. Women rights should be enforced especially in developing countries.
5. More of gender neutral policies should also be framed.
6. National policies should be framed to promote women innovators and entrepreneurs.
7. Women should be motivated to pursue their careers in STEM.

The research in totality provides useful insights for policymakers, stakeholders and practitioners helping them to take informed decisions and identify the gap areas where we are still lagging behind.

MANAGING THE BURDEN AND IMPLICATIONS OF MENTAL HEALTH ISSUES WITH INTEGRATION OF AYURVEDA



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Mr. Ashok Dobhal**

Dr. Manya Gupta***

Abstract

'The advent of deteriorating mental health and related issues has become a global concern.' This issue is acting as a catalyst to degrade not just the physical and mental state of the human being but also acting as a source to destruct the human resource and its efficacy. This article explores the intricacies related to mental health and how it affects psychological, social, and physical aspects of an individual. This article provides a basis for comprehending mental health as a condition of holistic balance by examining historical perspectives, especially those from traditional practices of Ayurveda. After that, this article looks at mental health issues among particular groups, including workers, students, and prisoners, with an emphasis on initiatives of different agencies working for improvement of mental health. The study highlights the need for culturally appropriate, financially feasible, and easily available mental health therapies. Special emphasis has been given to ayurvedic approach for the improvement of mental health. Apart from this to enhance mental health outcomes, key proposals include research-driven solutions, community participation, regulatory reforms, and more financing.

Keywords: Mental Health, Historical Views, Ayurveda, Holistic Balance, Incarcerated individuals

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Introduction

Health is a state of condition which includes not just the absence of any disease or infirmity but also a complete physical, mental as well as social well-being¹. Taking this into consideration, mental health is not only a problem for individuals; rather, it is a worldwide crisis that has ramifications for public health, the economy & society as a whole. Mental health issues are still stigmatized in many cultures, which results in neglect and a lack of assistance. In order to obtain a better understanding of how mental health issues impact people from a variety of demographics and how solutions might be maximized, this article provides a framework for analyzing mental health via historical, sociological, and policy-driven lenses. It is necessary for the healthcare providers to have clear understanding and meaning of health so that they can work on to improve it².

Mental health of any individuals can be affected by numerous socio-economic factors which are needed to be addressed. It is necessary to have comprehensive strategies to prevent and cure it.³ Our brain's development, adaptation, and response to adverse conditions and stress are influenced by several factors such as physical health, mental peace, security and protection, lifetime learning, social interaction, and availability of high-quality services⁴. It can be observed that the individuals spend their 2/3rd portion of life either in thinking, working or preparing about the jobs and financial stability in their life⁵. People mostly get carried away to build their future without thinking about the present which in turn leads to creation of a careless approach towards their personal health.

¹World Health Organization, "Mental Health", WHO, available at: <https://www.who.int/data/gho/data/themes/theme-details/GHO/mental-health#:~:text=Mental%20health%20is%20fundamental%20to%20our%20collective%20and,of%20individuals%20C%20communities%20and%20societies%20throughout%20the%20world> (last visited Nov. 16, 2024).

²A. Felman, "What is Good Health?", available at: https://www.medicalnewstoday.com/articles/150999#what_is_health (last visited Sep. 19, 2024).

³World Health Organization, Mental Health Action Plan 2013-2020, available at: https://iris.who.int/bitstream/handle/10665/89966/9789241506021_eng.pdf?sequence=1 (last visited Sep. 19, 2024).

⁴World Health Organization, "Brain Health", WHO, available at: https://www.who.int/health-topics/brain-health#tab=tab_1 (last visited Sep. 3, 2024).

⁵World Health Organization, "Mental Health", WHO, available at: <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response> (last visited Oct. 17, 2024).



***Swasthasya swasthya rakshanam aturasya vikara prashamanam cha* || [Charak Samhita sutrasthan Chapter 30 verse 26, page no. 447]⁶**

The primary aim of Ayurveda is the promotion and preservation of health of a healthy person and the eradication and management of disease of a sick person. Sushruta, a pioneer surgeon and a teacher of Ayurveda around 1200 BC - 600 BC described the health as a balance of Tridosha (physiological principles governing the body), Agni (the processes involving metabolism and digestion) and Dhatu (the principles governing the tissue formation in the body)⁷ [Sushruta Samhita Sutra Sthana, “Dosha Dhatu Mala Kshaya Vriddhi Vijnaniya Adhyaya”, Chapter 15 verse 41]⁸.

In Ayurveda mental health is described in Atharva-veda and in Brihattryee - Charak, Sushruta and Vagbhata containing detailed nidana panchaka: Nidana (etiology), Purvarupa (Prodromal symptoms), Rupa (Sign and symptoms), Samprapti (Pathogenesis) and Upshaya (therapies)⁹.

“Vayu pittan kaphach uktah shariro doshsangrah |

***Manash punarudhishto rajasch tam ev ch ||”* [Charak Samhita Sutrasthan Chapter 1 verse 57]¹⁰**

Vata pitta and kapha are the bodily humors while raja and tama are the doshas of mind. Ayurveda considers a person to be healthy only if there is a balance between the three doshas (viz. Vata, Pitta and Kapha)^{11 12}. Mind of a person includes Dhi (which is the intellectual ability), Dhriti (which is the ability of a person to process and information) and Smriti (which is the

⁶V. Shukla, and R.D.Tripathi, Carakasamhita of Agnivesha (Chaukhamba Sanskrit Pratishthan, Delhi, 2017).

⁷Gopal Basisht, “Exploring Insights Towards Definition and Laws of Health in Ayurveda: Global Health Perspective”, Ayu, 35(4) (2014) 351–355.

⁸Vaidya Jadavji Trikamji Acharya (ed.), Sushruta Samhita, (Chaukhamba Orientalia, Varanasi, 2005).

⁹Anurag Pandey and Mamta Tiwari, “Concept of Mental Health in Ayurveda” 4 World Journal of Pharmaceutical Research 2004 (2015).

¹⁰V. Shukla, and R.D.Tripathi, Carakasamhita of Agnivesha (Chaukhamba Sanskrit Pratishthan, Delhi, 2017).

¹¹Elsbeth Riley, “A Beginner’s Guide to Ayurveda & Balancing the 3 Doshas”, mindbodygreen, February 23, 2022, available at: <https://www.mindbodygreen.com/articles/ayurveda-for-beginners-how-to-balance-your-doshas> (last visited Sep. 23, 2024).

¹²Understand The Three Doshas in Ayurveda: Vata, Pitta, and Kapha, available at: <https://www.ashpveda.com/blogs/health/doshas-in-ayurveda-vata-pitta-kapha> (last visited Sep.15, 2024).



memory or the ability to retain and recall any information)¹³. Dhi represents the physical mind and intelligence of a person therefore it is necessary to have a well-balanced vata dosha for proper functioning of Dhi [Sutra Sthana, Chapter 12, Verse 08]¹⁴. Dhriti represents the power of control over senses and ability to process any information hence it is necessary for any person to have Pitta dosha to be in balance¹⁵. While it is necessary to have Kapha dosha to be well-balanced in order to attain a healthy memory [Sharir Sthana, Chapter 1, Verse 149].¹⁶

An individual's mental health, which is an essential component of their total well-being, has an impact on their capacity to deal with the problems of life, to work successfully, and to sustain meaningful relationships. According to World Health Organization (WHO), a person is considered to be in a state of good mental health when they are able to cope with stressful situations, perform well at job, and actively participate in their community¹⁷.

There are several variables that are responsible to influence mental health, including socioeconomic status, biological predispositions, cultural influences and stresses induced by environment. There is availability of fewer treatment alternatives and various stigmas and stereotyping which exacerbate the worldwide mental health scenario, especially if we look into low-income and middle-income countries, 76% - 85% of serious mental health disorders remain unaddressed¹⁸.

A person to have a complete physical and mental well-being is a basic human right and is a crucial requirement for social as well as community development but if we look after the developments in the field of mental health, the rate of growth appears to be very slow.

¹³M. Bhojani, and S. Verma, "Dhriti", Charak Samhita Research, Training and Development Centre eBooks (2023).

¹⁴Acharya Yadavji Trikarma Ji (ed.), Agnivesha's Charak Samhita with Ayurveda Dipika Commentary of Chakrapani Datta, (Chaukhambha Surbharti Prakashan, Varanasi, 2002).

¹⁵Anurag Pandey and Mamta Tiwari, "Concept of Mental Health in Ayurveda", 4 World Journal of Pharmaceutical Research, 2004-2013 (2015).

¹⁶Acharya Yadavji Trikarma Ji (ed.), Agnivesha's Charak Samhita with Ayurveda Dipika Commentary of Chakrapani Datta, (Chaukhambha Surbharti Prakashan, Varanasi 2002).

¹⁷World Health Organization, "Mental Health", WHO, available at: <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response> (last visited Oct. 17, 2024).

¹⁸World Health Organization, Global Burden of Mental Disorders and the Need for a Comprehensive, Coordinated Response from Health and Social Sectors at the Country Level, Executive Board, EB130/9 (2011), available at: https://apps.who.int/gb/ebwha/pdf_files/EB130/B130_9-en.pdf (last visited Oct. 17, 2024).



Methods

This study depicts a panoptic literature review, with combination of traditional perceptive from ancient Ayurvedic principles with contemporary research on mental health. Ayurveda's holistic approach emphasizes the balance of physical, mental, and spiritual elements, highlighting concepts such as Tridosha (three bodily humors) and the mental faculties Dhi, Dhriti, and Smriti. These perspectives provide a historical foundation for understanding mental health beyond modern medical frameworks.

The information was gathered from certain case reports, different government policies and academic studies to assess the current state of mental health care and different challenges faced by specific populations in India and globally. A comprehensive knowledge of mental health issues, their root causes, and the need for intervention across a range of populations is made possible by this analytical approach.

Causes of Mental Illness

“Dharayet tu sada vegana hitaishie pretya cheha cha

Lobha irshya dwesha matsarya raga deenam jitendriya”[Sutra Sthana, Chapter 4, Verse 24]¹⁹

The Potential factors of Mental Illness as mentioned in one of the Brihatryee i.e. by Acharya Vagbhatta. He told in his commentary that a person should have control of his senses and pessimistic approach like being greedy, showing irritable behaviour most of the time, anger issues, competitive approach and attachment.

Tridosha and trigunas of mind are the causative factors of mental illness. Shoka (sorrow), krodha (anger), chinta (overthinking), kama (lust), lobh (greed), moha (state of delusion), irshya (jealousy), abhimana (pride), mada (euphoria) and bhaya (fear) in excess are some of the counter emotions which can act as a contributor to mental issues [Nidana Sthana, Chapter 7, Verse 4].²⁰

What are the underlying reasons behind mental health problems?

There are number of causes that can create mental health problems. A person may be drawn into the shadows of mental health problems for a number

¹⁹A.M.Kunte (ed.), Vagbhatta's Astanga Hridaya (Chaukhambha Orientalia 1996).

²⁰Acharya Yadavji Trikarma Ji (ed.), Agnivesha's Charak Samhita with Ayurveda Dipika Commentary of Chakrapani Datta, (Chaukhambha Surbharti Prakashan, Varanasi 2002).



of reasons. It varies from person to person. Extreme or prolonged stress; childhood abuse, trauma, or neglect; failed relationships; experiencing racism and other forms of prejudice and stigma; drug and alcohol abuse; career-related anxiety; job dissatisfaction; medical conditions such as diabetes, heart attacks, cancer, etc.; prolonged poor physical health; accidents; emotional trauma; insomnia; OCD; loneliness, severe trauma as an adult, such serving in the military, experiencing a life-threatening situation, or becoming victim to a violent crime or bullying, and many more are factors that contribute to poor mental health.

Stress and social isolation seem to be the triggers for many depressive episodes. According to few of the research certain mental health issues maybe hereditary and may be seen to run in families²¹. For instance, it is possible that there may be higher chances of developing schizophrenia for an individual if he has a parent who suffered from it. However, it is not correct to say that this is due to the DNA or other variables like the upbringing, behavior patterns or the family environment only. Although there are possibilities that genes may play a role in the development of various mental health issues²².

The human brain is a very complex organ. According to few studies, differences in specific brain chemicals such as serotonin and dopamine may also be responsible for mental health issues²³. However, nobody truly knows how or why. There is very little evidence to support the claim that mental health issues are caused by a person's brain chemistry. However, some individuals continue to utilize brain chemistry to explain mental health issues despite the lack of solid evidence that any such issues are brought on by

²¹National Institutes of Health, "Common Genetic Factors Found in 5 Mental Disorders", available at: <https://www.nih.gov/news-events/nih-research-matters/common-genetic-factors-found-5-mental-disorders#:~:text=Scientists%20have%20long%20recognized%20that%20many%20psychiatric%20disorders,disorder%20%28ADHD%29%2C%20bipolar%20disorder%2C%20major%20depression%20and%20schizophrenia> (last visited Oct. 17, 2024).

²²National Institute of Mental Health, "Looking at My Genes: What Can They Tell Me About My Mental Health?", available at: <https://www.nimh.nih.gov/health/publications/looking-at-my-genes#:~:text=Common%20mental%20disorders%20like%20depression%20and%20anxiety%20are,Most%20genetic%20variants%20don%E2%80%99t%20directly%20cause%20mental%20disorders> (last visited Oct. 17, 2024).

²³P. Belujon and A.A.Grace, "Dopamine System Dysregulation in Major Depressive Disorders", 20(12) *The International Journal of Neuropsychopharmacology* 1036–1046 (2017).



a chemical imbalance in our brains. There is ample evidence that medicine along with procedures like psychotherapies and brain stimulation therapies can be beneficial in treating certain symptoms of mental health issues, and certain psychiatric medications function by influencing neurotransmitters in the brain²⁴.

Discussion

Mental health has become a serious concern throughout globe. It means the well-being of mental ability of a person to learn, work, and take decisions to combat the stress related to life. We cannot declare a true physical health in absentia of mental well-being²⁵. A person to have a complete physical and mental well-being is a basic human right and is crucial for social as well as community development. But if we look after the developments in the field of mental health, the rate of growth appears to be very slow²⁶.

People are not ready to accept that they are suffering from mental disorders. Around 14 percent of diseases shared by the globe are related to neuropsychiatric disorders²⁷. People living under the umbrella of poverty, unemployment, poor chronic diseases, neglected children, old-age people, LGBTQ community, prisoners and physically challenged are at higher risk of mental health deterioration. It can be observed that people affected from mental disorders are at higher risk of disability and mortality. A person suffering from major depression and schizophrenia can have 40% to 60% higher chances of dying prematurely than general population due to his untreated physical health problems and suicide which have now become the most common reason of deaths among the youth²⁸. Still visiting a psychiatrist or psychologist is being considered as a matter of shame. People are not ready to discuss their issues related to life in order to avoid the situation where they can be a potential subject of mockery. Nearly 76% - 85% people suffering from severe mental disorders in low and middle income countries whereas nearly 35% - 50%

²⁴National Institute of Mental Health, "Mental Health Medications", available at: <https://www.nimh.nih.gov/health/topics/mental-health-medications> (last visited Oct. 19, 2024).

²⁵K.Srivastava, K. Chatterjee and P. Bhat, "Mental Health Awareness: The Indian Scenario", 25(2) Industrial Psychiatry Journal 131(2016).

²⁶ Ibid.

²⁷ Ibid.

²⁸World Health Organization, Mental Health Action Plan 2013-2020, available at: https://iris.who.int/bitstream/handle/10665/89966/9789241506021_eng.pdf?sequence=1 (last visited Oct. 19, 2024).



in high income countries are those who never received any treatment for their health problems because of their ignorance²⁹.

Mental health concerns are prevalent across demographics and they are especially bad for vulnerable groups. Lack of knowledge, societal stigma, and socioeconomic status all play a role in keeping people from receiving the therapy they need. During the initial year of the COVID-19 pandemic, the worldwide occurrence of anxiety and depression surged by 25 percent, as reported in a scientific brief published by the World Health Organization (WHO)³⁰. In India, the government has made strides to promote community-based mental health treatments and guarantee patient rights through the National Mental Health Program (NMHP) and the Mental Healthcare Act (2017)³¹. But there are still problems, such as a lack of mental health education, a lack of resources, and a lack of access to qualified specialists.

Potential Impacts of Mental Health on People

A person with a compromised mental health condition may experience changes in his thoughts, feelings, emotions, and behavior. It could have an impact on their physical well-being and how they react to certain life stigmas. Lower self-confidence, excessive enthusiasm, fear, and concern about future outcomes are some of the possible effects. Any person's physical and financial stress levels are greatly influenced by their mental health. Mental health problems impact each person differently. For some people, mental health issues can have little effect on their lifestyle or workplace, but for others, they can wreak havoc on their everyday lives by interfering with their schooling, careers, and interpersonal connections. Most people are prone to become alienated and disengaged from society and those around them as a result of mental health issues. They tend to eliminate all potential assistance and avoid discussing their circumstances, even with those closest to them. They become

²⁹K.Demyttenaere, R. Bruffaerts, et.al. "Prevalence, Severity, and Unmet Need for Treatment of Mental Disorders in the World Health Organization World Mental Health Surveys" 291(21) JAMA 2581 (2004).

³⁰World Health Organization, "COVID-19 Pandemic Triggers 25% Increase in Prevalence of Anxiety and Depression Worldwide", available at: <https://www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide> (last visited Oct. 19, 2024).

³¹ K.Ranade, A. Kapoor, et.al. A. "Mental Health Law, Policy & Program in India – A Fragmented Narrative of Change, Contradictions and Possibilities", 2 SSM - Mental Health, 100174 (2022).



so alone that they either avoid conflict or become used to becoming hostile when others try to interact with them, which eventually leads to the breakdown of many of their relationships.

People with mental health disorders can be inspired and cured to lead full lives with the right support and therapy, but occasionally, the medications used to treat them can also have unfavorable side effects. Therefore, it becomes essential to provide emotional and social assistance to the individual affected by a mental health illness. People's mental health might affect them by reducing their sense of self-worth and confidence. It can demotivate a person's self-reliability by making him adopt a pessimistic view of society. It is evident that it is turning into a significant factor that pushes people into the depths of anxiety and sadness, which impedes their capacity to think clearly and make wise decisions. Any individual must be in good mental health and condition. People only recognize physical health issues and frequently disregard mental health issues, either out of shame or ignorance, which impairs not only one's cognitive ability to think, perceive, remember, and recall, but also one's capacity for concentration, decision-making, and situational adaptation. Physical concerns such as stress, sleeplessness, anxiety, depression, hypertension, stomach troubles, cholesterol disturbance, and several other potentially fatal disorders might be caused by this.

Signs and symptoms

There are various signs and symptoms of mental health illness including feeling depressed or hopeless; thinking hazily, having trouble in focusing, sentiments of extreme guilt, excessive anxieties or fears, extreme mood swings, withdrawal from hobbies, loneliness, having no friends, fatigue, lack of energy, insomnia, delusions of detachment from reality, paranoia, hallucinations, Inability to handle daily stress, problems in comprehending and connecting to people, Inability to deal unforeseen circumstances, drug or alcohol abuse, significant modifications to feeding patterns, changes in sex desire, excessive rage and aggression, hyperactive, suicidal thoughts, lack of confidence, inability in decision making, physical issues like headaches, back pain, stomach discomfort, irritable bowel syndrome, or other inexplicable aches and pains can occasionally be signs of a mental health illness.

People who have blood relations with mental illnesses are more likely to suffer from mental illnesses themselves. For example, if one person in a family is suffering from schizophrenia, the possibilities of other members



of the same family to suffer from schizophrenia, bipolar disorder, autism, or major depression are higher than others³².

The natural brain chemicals called neurotransmitters send signals to different parts of our body and brain. The prenatal exposure to environmental stressors, inflammatory disorders, chemicals, alcohol or narcotics may also be a factor responsible for disturbance of these neurotransmitters which may result in mental health diseases. Depression and other emotional disorders result from altered nerve receptor and nerve system function caused by impairments in the brain networks containing these substances³³.

MENTAL HEALTH ISSUES AFFECTING SOCIETY

No social sphere has remained untouched with the challenges of sound mental health. Still for better understanding this research demonstrate how mental health disorders affect different groups in a wide range of ways in the following manner.

Mental Health and Academia

A survey was conducted by Manodarpan Cell, NCERT, on the students across India which involved 3,79,013 students from 28 states and 8 Union Territories between January and March 2022. It was found in the survey that a large percentage of the students (81%) experienced anxiety over their coursework, examinations, and results.³⁴ In a survey conducted by YouthTruth in 2022, it was found that more than half of the high school students surveyed identified feelings of despair, worry, or anxiety as obstacles to their academic performance³⁵.

³²I. Wickelgren, “Why Do So Many Mental Illnesses Overlap?”, *Scientific American*, March 4, 2024, available at: <https://www.scientificamerican.com/article/why-do-so-many-mental-illnesses-overlap/> (last visited on Aug. 27, 2024).

³³R.S. Duman, “Neuronal Damage and Protection in the Pathophysiology and Treatment of Psychiatric Illness: Stress and Depression”, 11(3) *Dialogues in Clinical Neuroscience*, 239–255 (2009).

³⁴Department of School Education and Literacy, *Mental Health and Well-Being of School Students: A Survey Report*, Ministry of Education, Government of India, available at: https://dsel.education.gov.in/sites/default/files/update/Mental_Health_WSS_A_Survey.pdf (last visited Oct. 29, 2024).

³⁵YouthTruth, “YouthTruth Student Survey Results: Depression, Stress, and Anxiety as Barriers to Learning”, available at: <https://youthtruthsurvey.org> (last visited on Oct. 19, 2024).



The NEP 2020 advocates for proactive measures, including the development of psycho-educational interventions to assist each student in maximizing their potential and attaining a favorable condition of mental health³⁶. Apart from physical wellbeing the illness related to mental health can affect the thoughts, feelings, and the behavior of an individual. People dealing with mental health issues can be affected in various ways such as by emergence of feeling of being overpowered, loss, sadness, being anxious of what lies ahead etc. Each person deals with mental issues differently by substantially affecting the ability to do their jobs and creating several obstacles to work and education for some of the patients while by ruining personal and family life of others. There are possibilities of financial stress and this can have an adverse effect on not only their health but on their relationships as well. Loneliness and social isolation are symptoms that most of the people with mental health issues may face. Dealing with the many side effects of medication and getting unresponsive to medications are few of the challenges that might arise while treating a patient with mental health disorder. There are chances that individuals dealing with mental health issues are susceptible to discrimination and stigma which can make them hesitant to seek assistance they need or even to acknowledge that they have a problem. Beside this, the consequences of mental health issues are not necessarily negative all the time. In some cases those who struggle with mental health issues on a daily basis may discover new skills and qualities that may speed up the recovery process. The majority of individuals with mental health issues may get well and live fulfilling lives with the right support system in place, despite the fact that these conditions can have devastating impacts.

Where do we stand with students who have varying approaches to learning?

Students with attention-deficit/hyperactivity disorder (ADHD) or other learning difficulties sometimes struggle in the classroom since their individualized education programs do not take their needs into account. In reality, half of all children who struggle with reading also suffer from anxiety, and a whopping 70%

³⁶ Ministry of Education, Department of School Education and Literacy, Mental Health and Well-Being of School Students: A Survey Report, available at: https://dsel.education.gov.in/sites/default/files/update/Mental_Health_WSS_A_Survey.pdf (last visited Oct. 23, 2024).



of kids who struggle with learning disabilities also exhibit greater levels of anxiety symptoms compared to their typically developing peers³⁷.

For example, it's not uncommon for youngsters with ADHD to still need help focusing, even in situations that promote learning. Without proper management of their ADHD and learning, they run the danger of falling behind in their coursework or failing all of their classes. In the worst-case scenario, bullies target teenagers because of their ADHD, which can lead to stigmatization and contribute to undiagnosed or co-occurring mental health issues.

Schools should recognize the reality of mental health illnesses and provide necessary accommodations for their students. Students with mental health challenges still have an opportunity to study if this is made better.

Mental Health and other fields

- **General Population**—Millions of people of all ages and socioeconomic backgrounds are impacted by mental health illnesses, which make up fourteen percent of the world's total disease burden. More vulnerable populations include those dealing with low income, unemployment, and social shame. People from low-income backgrounds, the elderly, members of the LGBTQ community, and those with long-term health conditions are at a heightened risk of mental illness. [A survey revealed that LGBTQ+ individuals utilized mental health treatments at rates 2.5 times greater than their straight peers³⁸. Unfortunately, they are more likely to suffer from humiliation, terror, prejudice, and traumatic experiences.
- **Patients**—Mental Health issues are highly prevalent with patients suffering from Chronic disease. They are always in fear of death or suffering. Especially during Covid-19 pandemic, the patients suffering from disorders such as stress and anxiety increased significantly which resulted in worsening of their prevalent diseases and onset of newer ones.³⁹

³⁷ P. Xiao, K. Zhu, et.al. "Associations Between Dyslexia and Children's Mental Health: Findings from a Follow-Up Study in China", 324 *Psychiatry Research*, 115188 (2023).

³⁸ L.F. Platt, J.K. Wolf, et.al. "Patterns of Mental Health Care Utilization Among Sexual Orientation Minority Groups", 65(2) *Journal of Homosexuality*, 135–153 (2018).

³⁹ Rubén A García-Lara , Nora Suleiman-Martos, et.al. "Prevalence of Depression and Related Factors among Patients with Chronic Disease during the COVID-19 Pandemic: A Systematic Review and Meta-Analysis," 12(12) *Diagnostics (Basel, Switzerland)* 3094 (2022).



- **Employees**—Employees' low mental health is associated with lower productivity, more absenteeism, and worse job satisfaction. Depression and stress in the workplace are associated with increased rates of disability and unemployment, which has a significant economic impact. According to research, stress in the workplace has far-reaching consequences for the financial stability and productivity of organizations, in addition to its effects on the mental health of employees.
- **Incarcerated Individuals/ Inmates**—Psychosis, depression, and drug misuse are among the many mental health issues that afflict the jail population at alarming rates. Offenders are more likely to commit suicide, self-harm, or act violently when they receive inadequate therapy, which worsens these problems. The jail system makes female and elderly inmates more vulnerable by ignoring their distinct mental health requirements.

Remedies for Mental Illness in Ayurveda

The remedial measures for management of mental health are available in various pathies but most of the time it has been observed that they come with significant side effects. This research talks about ayurvedic approach towards more effective management of the same with negligible side effects.

Prashamyatyaushadhe purvo daivuktivyapashraye |

Manaso gyanvigyandhairye smritisamadhibhi || [Charak Samhita Sutrasthan Chapter 1 verse 58]⁴⁰

The bodily humors or disease can be pacified by daivyapashraya chikitsa and yuktivyapashraye chikitsa whereas the Doshas of the mind can be pacified by gyan (knowledge), vigyan (scientific approach), dhairye (patience), smriti (memory) and samadhi.

General principles of Management of Mental Health in Ayurveda are -

Daivavyapashraya (Spiritual therapy), Yuktivyapashraya (Rational therapy), and Sattvavajaya Chikitsa (Psychological therapy)[Sutra Sthana, Chapter 11, Verse 54.]⁴¹.

⁴⁰V. Shukla, and R.D.Tripathi , Carakasamhita of Agnivesha (Chaukhamba Sanskrit Pratishthan, Delhi, 2017).

⁴¹Acharya Yadavji Trikarma Ji (ed.), Agnivesha's Charak Samhita with Ayurveda Dipika Commentary of Chakrapani Datta , (Chaukhambha Surbharti Prakashan, Varanasi 2002).



Daiva Vyaprashraya: These methods create confidence and optimistic tendencies.

This method includes Mantras (Chanting Hymns), Aushadha (Herbs), Manimangala

(Auspicious offerings), Bali (Spiritual offerings), Homa (Yajna), Niyama (Regulations), Prayascita (Atonement), Upavasa (Fasting), Chanting of Mantras, Spiritual, healing, Religious rites etc.

Yukti vyaprashraya: Uses of Medicines by Shodhana (Therapeutic procedures) and Shamana (Pacifying treatment modalities).

The preparations can be :-

- Herbs (Medhya Drugs) - Brahmi, Mandukaparni, Ashwagandha, Jatamamsi, Shankapushpi etc.
- Ghritas (Medicated clarified butter) - Panchgavya ghrita, Brahme ghrita, Maha kalyanaka ghrita etc.
- Herbomineral Preparations - Brahmi vati, Vata Kulantaka Rasa, Smriti Sagar Rasa, Yogendra rasa, Manasamitra vatakam.

Satwaavajaya:- (Psychotherapy):- This therapy deals with the controlling of mind i.e. an individual should keep himself establish in his oneself after knowing real nature of soul and attaining height of spiritual wisdom. Its techniques are: Gyan - Spiritual Knowledge, Vignana - Educating the Patient, Dhairya - Moral Boosting, Smruti - Reviving the Knowledge, Samadhi - Abstaining from Over Indulgence in Materialistic world.

Yoga therapy- “Yoga moksho pravarkak” i.e. by practicing Yoga, an individual can attain a state of Moksha. Process of increased Sattva and decreased Raja and Tama guna leads to Karmakshaya (loss of deeds) is way of attaining a state of Moksha [Sharir Sthana, Chapter 1, Verse 137]⁴².

Aachara Rasayana – This treatment does not involve the drug intervention. It is a motivational therapy which involves life processes such as speaking truth, should abstain from involving in anger issues, should not indulge in alcohol intake and over indulgence in sexual activities, Hygiene must be maintained, regular sleep patterns to be followed and a healthy wholesome diet should be taken and should control his senses is said be ideal for Physical, Mental and Spiritual well-being [Chikitsa Sthana, Chapter 1, Verse 4/30]⁴³.

⁴²*Ibid.*

⁴³*Ibid.*



Dinacharya -The daily routine habits like waking up when the sun rises, cleaning your body and starting the day with worshipping the God. Selecting the appropriate meal for the desired appetite and metabolic needs is the foundation towards respecting our body. Correct use of time i.e. to eat only when hungry, take rest when fatigue. If any of these psycho-biological need is not fulfilled or over fulfilled the imbalance in the body occurs. Circadian rhythms gets disturbed by late night sleeps and eating stale food, having sex at wrong time i.e. during menses. Misuse of any of the senses thus leads to an imbalance in the bodily humors which leads to the illness. Thus Dinacharya should be followed in a proper manner (Sutra Sthana, Chapter 6, Verse 6).⁴⁴.

Conclusion

A multi-level strategy including policy, communities, and individuals is necessary to address mental health, a vital part of public health. Community support, easily available healthcare, and public knowledge are the three pillars upon which effective mental health initiatives rest, particularly for marginalized communities. Improving general well-being, reducing stigma, and enhancing the quality of life for individuals across varied backgrounds may be achieved by prioritizing mental health and addressing its particular problems.

Recommendations

To address mental health concerns thoroughly, the following activities are suggested:

- **Policy Enhancements:** Policymakers must provide enough financing for mental health programs, particularly in low-income areas. This involves increasing the availability of mental health services, funding treatments, and educating mental health workers.
- **Community Engagement:** Community-led awareness initiatives, workshops, and support groups can help to lessen stigma around mental health issues. Educating the public about mental health concerns fosters a friendly atmosphere and encourages individuals in need to seek assistance.
- **Targeted Interventions:** Institutions such as schools, businesses, and prisons must develop mental health programs that are customized to their respective populations. Counseling, mindfulness training, and support services may be among the strategies used to promote mental health.

⁴⁴*Ibid.*



- **Additional Research:** More research is needed to determine the efficacy of various mental health therapies, especially in resource-limited situations. Research on cultural, social, and demographic characteristics can help to shape policy and enhance the quality of mental health care for a wide range of communities.

INDIAN CONSTITUTION AND ENVIRONMENT: CASE STUDY OF UTTARAKHAND'S ENVIRONMENTAL CHALLENGES



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Abstract

The right to a clean and healthy environment is a fundamental aspect of Article 21 of the Indian Constitution. Environmental protection and improvement are key principles that have been consistently upheld in various judicial rulings. Citizens also bear a constitutional duty to protect and improve the environment, which includes forests, rivers, wildlife, and showing compassion for all living creatures. Established legal principles, such as the Polluter Pays Principle and the Precautionary Principle, need to be integrated into the concept of Sustainable Development. It is indeed undeniable that law plays a pivotal role in protecting our Environment. In a state like Uttarakhand, which is highly susceptible to numerous calamities, it makes it all the more crucial to institute robust legal frameworks. Uttarakhand has a history of judgements addressing wide range of Environmental challenges. Measures by the state government such as approval of District Fire Management Plan, Awareness Generation programmes, Rotational burning/controlled burning of forest floor litter, Clearing of fire-lines in the forests, Master control room watch towers, Crew stations, wireless communication network are just some examples of initiatives our government is undertaking to protect and preserve our environment. Uttarakhand is also the first state to introduce Gross Environment Product index which assigns monetary value to natural resources like air, water, forest, and soil. The index will monitor the health of four key environmental constituents directly affected by development:

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air and water quality, the number of trees planted annually, and the area of organic soil. An improvement in these factors will reflect positively on the GEP index, signifying environmental harmony. Conversely, deterioration due to industrial activities will cause a decline in the index. Essentially this will help evaluate the environmental carrying capacity to accommodate the imposed load. All of this represents merely the tip of iceberg. However, the primary objective of our paper is to comprehensively evaluate the various measures and judicial precedents that the state of Uttarakhand has implemented.

Keywords: *Uttarakhand, Environment, Sustainable Development, Constitution*

INTRODUCTION

Sheltered in the Himalayas, Uttarakhand is known for its scenic views, abundance of natural resources and a wide range of flora and fauna. Uttarakhand's unique topography, its susceptibility towards natural calamities and its unique way of handling the climatic challenges is what makes it a perfect State to do environmental research on.

It is no surprise that the rapid growth in industrialization, emissions from industries, improper disposal of waste, and release of chemical effluents are certain factors causing severe and irreversible environmental harm to the environment. However, the Indian Constitution provides specific provisions for Environmental Protection. Article 51-A (g), says "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife and to have compassion for living creatures." The Constitution of India under part III guarantees fundamental rights which are essential for the development of every individual and to which a person is inherently entitled by virtue of being human alone. The right to the environment is also a right without which development of individual and realisation of his or her full potential shall not be possible. Articles 21, 14 and 19 of this part have been used for environmental protection. Public Interest Litigation under Article 32 and 226 of the constitution of India resulted in a wave of environmental litigation. The leading environmental cases decided by the Supreme Court includes case of closure of limestone quarries in the Dehradun region (Dehradun Quarrying case, AIR 1985 SC 652), the installation of safeguard at a chlorine plant in Delhi (M.C. Mehta V. Union of India, AIR 1988 SC 1037) etc. In Vellore Citizens Welfare Forum vs. Union of India (1996) 5



SCC 647, the Court observed that “the Precautionary Principle” and “the Polluter Pays Principle” are essential features of “Sustainable Development.” Considering the above-mentioned provisions, certain proactive measures taken by the Uttarakhand Judiciary and their implementation by the State’s Executive have led to improved ecological conditions and towards a sustainable future.

The researcher in the present research has made efforts to use a descriptive and analytical research design, aiming to describe the environmental hazards and climatic conditions in the State of Uttarakhand and analyzing the proactive role played by the Uttarakhand Judiciary in taking measures for mitigating the disastrous environmental impact and bringing in adaptive rulings. The objective of this paper is also to understand the Gross Environment Product Index. State of Uttarakhand, being the first State to adopt the GEP Index, have taken an implied responsibility to bringing forth the progressive measure.

The primary data is secondary research, involving an extensive literature review, books, online news websites, judgments of the Hon’ble High Court of Uttarakhand, journal articles, and other literary works. Existing databases and published research papers on the present topic were crucial sources for gathering a comprehensive overview of the research. The content Analysis method helped the authors extract meaningful insights from qualitative information sources. The Bluebook Citation format adhering to its 19th Edition has been used uniformly throughout the research.

1.1. State Profile

To understand the brief geography of the State of Uttarakhand, it lies in the Northern part of the Indian Sub-continent between 28° 44' & 31° 28' N Latitude and 77° 35' & 81° 01' East longitude. The State, mostly lying in the hilly terrain was carved out of the State of Uttar Pradesh on 9th November 2000. The geographical area of the State is about 53483 square km, with large areas under snow cover and having steep slopes. The State comprises of 2 major regions-Garhwal and Kumaon, having 13 districts, 78 tehsils and 95 community blocks.

On the parameters of altitude, the State has separate climatic zones which are divided as per their temperature records. Following are the climatic zones of the State:



Table 1: Different climatic zones of Uttarakhand.

Elevation (in meters)	Climate Zone based on temperature
<i>“900m – 1800m</i>	<i>Warm Temperate</i>
<i>1800m-2400m</i>	<i>Cool Temperate</i>
<i>2400m-3000m</i>	<i>Cold Zones</i>
<i>3000m-4000m</i>	<i>Alpine Zones</i>
<i>4000m-4800m</i>	<i>Glacier Zone</i>
<i>>4800m</i>	<i>Frozen Zone”</i>

Data adapted from Uttarakhand Biodiversity Board (An autonomous statutory Body constituted under Biological Diversity Act 2002), Last Updated on 13-07-2023

On the parameters of land elevation, the classification of different regions of the State of Uttarakhand is as follows:

Table 2: Different regions of the State of Uttarakhand on the parameters of land elevation

Elevation Level (above mean sea level)	Region
<i>“<300m</i>	<i>Terrain Region</i>
<i>300m-600m</i>	<i>Lower hilly region</i>
<i>600m-2400m</i>	<i>Upper Hilly Region</i>
<i>2400m-4500m</i>	<i>Altitude Region</i>
<i>>4500m</i>	<i>High-Altitude Region”</i>

Data adapted from Uttarakhand Biodiversity Board (An autonomous statutory Body constituted under Biological Diversity Act 2002), Last Updated on 13-07-2023

The State is blessed with the large variety of Flora and Fauna. The State shelters around 4000 species of plants which fall under 192 families. According to the International Union for Conservation of Nature, 161 out of these 192 falls under threatened or rare species. Out of the 223 orchids found in the Northern part of the country, 150 are found in Uttarakhand. There are about 102 species of mammals, 124 varieties of fish, approximately 20 categories of Amphibians and 69 categories of reptiles. Top of FormSome endangered species like Asian Elephant, snow Leopard, tigers, musk, deer, Himalayan Monal, King cobras are found in Uttarakhand.

With all the unique forms of diversity that the State is blessed with, the biodiversity of the State is bound to be rich. It is astounding to know that



post the creation of State of Uttarakhand, as many as 3748 faunal species were inventoried and documented.¹

1.2 Environmental susceptibility

After having a brief knowledge about the State of Uttarakhand and its rich heritage which is supported by floral diversity, vegetation, forest cover, healthy and pristine ecosystem, it is important to understand the environmental susceptibility. Due to the unique biodiversity that the State enjoys, the State is also abode to many rare and endangered species of herbal and aromatic plants. Realizing the immense potential of the resource in the State, the State Government has declared Uttarakhand as an Herbal State.

Furthermore, this enriched variety of flora, fauna, terrain, climate, the geographical location of the State also makes it highly prone to the natural disasters. This develops a vulnerability factor and deserves to be study. Over the period of over a decade, the State has been witnessing what can only be termed as some of the worst calamities ever known and seen by humans in ages.

In 2013, the State faced catastrophic flash floods and landslides. Official number of people who were dead and missing came out to be over 6,000. The actual figures going up to over 10,000 in number. The deceased included all kinds of lives including pilgrims, tourists, cattle, horses, ponies, birds and the Environment.

The 2013 calamity was nothing less than a warning bell. At this juncture, it is crucial to delve into the key problems in Uttarakhand.

2. Key Problems in Uttarakhand

Due to the varied terrain of Uttarakhand, there are several problems that the State faces when it comes to their environment degradation. To list a few of these:

2.1 Forest Fires

Uttarakhand is on the sixth place amongst all the States in India in terms of percentage of recorded forest area. *“The total forest area under various classes of the State is 37,999.53 km², which is 71% of the geographic*

¹Jaspal Singh Chauhan, "Natural and Anthropogenic Impacts on Forest Structure: A Case Study of Uttarakhand State", 11 The Open Ecology Journal 38-46 (2018).

²Abhishek Sharma & Shri Ram, "Deforestation and its effect on landslides", 2 International Journal for Scientific Research & Development, (2014).



area. The forest area under forest department is 24418.67 km². In state according to FSI-2011 the very dense forests is 4,002 km², moderately dense forest, 14,396 km², and open forest, 6,044 km². Scrub is 320 km². About 19% area of the state is under permanent snow cover, glaciers and steep slopes where it is not possible to grow trees due to physical limitations.”² The figure below shows the forest cover as depicted from the Satellite Images of Forest Survey of India in the year 2012-2013:

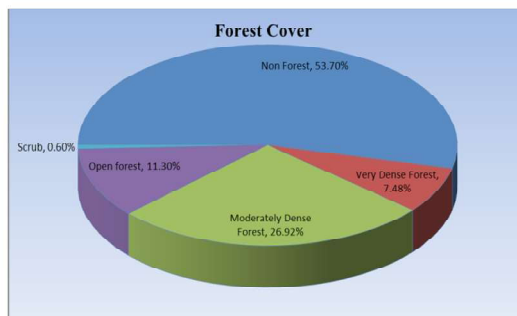


Fig.1. Forest cover as depicted from the Satellite Images of Forest Survey of India in the year 2012-2013. (Source: Uttarakhand Forest Statistics, 2012-2013)

Because of the agrarian-economy, there is a very high density of population which depends on the forests and consequently, this leads to having significant impact on the forest and the overall ecology of the State.

Forest fires have been a matter of concern for almost all districts of the State. In the Garhwal Region, forest fires were witnessed and reported in Uttarkashi, Pauri, Rudrapur, Chamoli and Dehradun. And in the Kumaon Division, forest fires were recorded in the districts of Almora, Bageshwar, Pithoragarh and Udham Singh Nagar. According to the reports of Uttarakhand Forest Department, nearly 11,256 fire incidences were reported in the time frame of November 23, 2023, to June 19, 2024.³

2.2 Landslides

In accordance with the reports of the Landslide Atlas of India, 8 out of 13 districts of the State of Uttarakhand are categories as highly vulnerable to landslides.⁴ Because of the high-risk factor and as a precautionary measure,

³<https://india.mongabay.com/2024/08/uttarakhand-forests-burn-while-fire-guards-face-outstanding-salaries-and-lack-of-resources>.

⁴Varsha Singh, Uttarakhand: Here's how forest fires and encroachments paved way for landslide at Varunavat mountain, (Sept. 23, 2024), available at: <https://www.downtoearth.org.in/natural-disasters/uttarakhand-heres-how-forest-fires-and-encroachments-paved-way-for-landslide-at-varunavat-mountain>.

Uttarakhand Chief minister Shri Pushkar Singh Dhami, directed the State to develop landslide warning system, after the incidence of Varunavat landslide. The alarming systems may warn for the heavy rainfalls and the Geographical survey of India issues timely warnings however, the fact remains that it is very difficult to time as to exactly when and at exactly what place the landslide will occur. This makes the State even more vulnerable.⁵⁵*Ibid.*

2.3 Extreme Rainfall and Cloudbursts

In recent times, cloudbursts and severe rainfall are being very commonly reported in the Upper Ganga Basin. The Upper Ganga Basin part of the of State of Uttarakhand as depicted in the figure below:

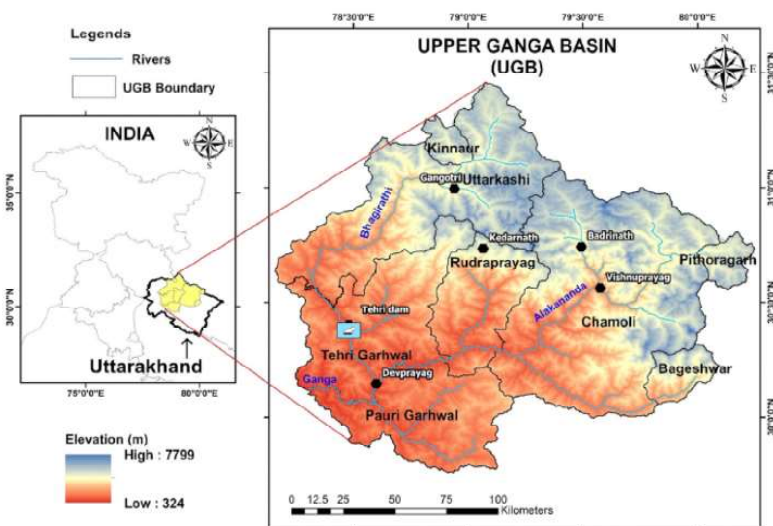


Fig. 2. The Upper Ganga Basin part of the of State of Uttarakhand
(Source: Science Direct)

The interaction of the monsoons with the features of the Himalayan ranges creates conditions in the area that attracts these are climatic conditions and risks like cloudbursts and extreme rainfalls. High altitude locations complimented with extreme weather conditions and low visibility are some reasons that sufficient monitoring of the area cannot take place which makes it even more hazard prone. The most vulnerable districts of the State as identified by the study conducted on “*Assessment of cloud bursts, extreme rainfall and vulnerable regions in Upper Ganga River Basin, Uttarakhand, India*” and published in International Journal of Disaster Risk Reduction, are

⁵⁵*Ibid.*



*“Joshimath, Bhilanganga, Bhatwari, Ukhimath, Chamoli, Rudraprayag and Tehri Garhwal.”*⁶ Adding to this, man-made interventions and poorly planned development in this region are also responsible for such evidence.⁷

2.4 Non-biodegradable waste

When waste is thrown in the areas which are eco-sensitive, it usually reaches the forests or the water bodies situated nearby and have severe impacts on the wildlife species. Research was published in the Journal for nature conservation which reported that dumped materials like metal pieces, plastic bottles, rubber and glass were reported to have been found in the elephant dung collected from the forests of in Uttarakhand.⁸ The author of the research quoted, *“It is an uncomfortable truth to face that elephants ingest plastic along with food waste (discarded food often wrapped in plastic) and carry it deep into the forest. Once the plastic exits the elephant’s system, it can continue to be a danger to other animals in the forest as it gets passed up the food chain.”*⁹ It is important to note that the State lacks the availability of processing, treatment and disposal plants. Urban local bodies face issues like difficulty in finding appropriate area for the set-up of landfills, less and improper collection of user charges and taxes and lack of skilled taskforce and technical experts.¹⁰ And therefore, the State faces problems of waste management and disposal which have severe impacts on the biodiversity, natural resources and ecosystem.

3. Around the world

After a through view of key problems, there is an understanding that there exists an urgent demand to address the crises faced by the environment and

⁶Prabhash K Mishra et al., “Assessment of cloudbursts, extreme rainfall and vulnerable regions in the Upper Ganga Basin, Uttarakhand, India”, 69 International Journal of Disaster Risk Reduction (2022).

⁷S.Nandgiri, et al., Hydrological Analysis of Extreme Rainfall Events and Severe Rainstorms Over Uttarakhand, India., 61 Hydrological Sciences Journal 2145-2163 (2015).

⁸Anusha Krishnan, Plastic, glass and other waste materials found in elephant dung in Uttarakhand, available at: <https://india.mongabay.com/2022/06/plastic-glass-and-other-waste-materials-found-in-elephant-dun-g-in-uttarakhand/>.

⁹Vishal Kumar, *Waste Management in Dev Bhoomi*, revolve, available at : <https://revolve.media/features/waste-management-dev-bhoomi>.

¹⁰Dhananjay Singh Shyamal et al., A review on the urban municipal solid waste management system of an Indian Himalayan State, 24 Journal of Material Cycles and Waste Management System of an Indian Himalayan State



to re-build the capacity of environment to sustain well-being of life on Earth. It's time that humans re-think about their consumption patterns and make required changes in their lifestyles. The UNEP, 2021 Report states "*system-wide transformation is the key to sustainable future.*" This revolution will encompass multiple changes in the very fundamentals. Changes are required in the way society progresses, the organisation pattern of the society, the norms and principles from which the society is shaped, the judicial principles that have evolved over time and the overall governance structure of the State.¹¹

For a sustainable transformation, the process involves re-structuring and re-orientation of governance process. Governance popularly refers to "*covers the whole range of institutions and relationships involved in the process of governing.*"¹² It is how "*collective goals are chosen, decisions are made, and actions are taken to achieve those goals.*"¹³

It signifies a complete institution whose decision making and the implementation of the same leads the way for successful redressal of the problems and challenges. A successful governance structure includes law-making, judicial oversight, and active involvement of both government and non-government agencies implementing the law made.

The effective governance for the sustenance of environment is needed in different directions however, for the purpose of this research, the paper will specifically examine the role that the Hon'ble High Court of Uttarakhand has played in shaping and advancing the environmental jurisprudence. Hon'ble High Court of Uttarakhand has over time assessed various issues pertaining to hazards related to the environment and have highlighted various ecological concerns. The judiciary has, in the form of various adaptive measures and directions has worked towards promoting sustainability and achieving SDGs. This paper, therefore, focuses on how judicial activism in Uttarakhand has contributed to establishing environmental jurisprudence that is responsive to the region's specific needs.

4. Judiciary: India and State of Uttarakhand

After understanding the major environmental hazards that are faced by the State of Uttarakhand, we see that the number of litigations concerning the

¹¹United Nation Environment Program, *Making Peace With Nature a Scientific Blueprint to Tackle the Climate, Biodiversity and Pollution Emergencies*, (2021).

¹²Andrew Jordan, *The Governance of Sustainable Development: Taking Stock and Looking Forwards*, 26 *Environment and Planning C: Government and Policy* 17-33 (2008).

¹³Cosens Barbana, *The Role of Law in Adaptive Governance*, 22 *Ecology and Society* 1-12 (2017).



same has also gone significantly high. Across all jurisdictions, there have been environment specific litigation in order to mitigate the climate changes and restore the environment or adapt to the crises brought by the environmental depletion. These mitigation techniques and adaptation measures are directed in the due course by the adjudicating authorities.¹⁴ The environment disputes are majorly brought in relation to the execution of compliances from different stakeholders, violation of Human rights and Constitutional rights, corporate liabilities etc.¹⁵ In developing countries like India and geographically vulnerable mountainous States like Uttarakhand, Himachal Pradesh and Jammu and Kashmir, environment claims brought before the Court are mainly relating to implementation of government policies to mitigate or adapt to climate crises.

The Indian judiciary has always stood strong as the protector of the rights of its people.¹⁶ The Hon'ble Supreme Court of India is famously called as the "*guardian of the social revolution*."¹⁷ Additionally, International principles, Public Interest Litigation and the law enforcing tortious and contractual liabilities have played an important role in deciding environmental concerns.

In Uttarakhand, environmental jurisprudence is shaped by the State's distinct challenges: environmental conservation, infrastructure development, climate resilience, and disaster mitigation etc. The Uttarakhand judiciary has responded to these challenges with unique, State-centric rulings, ensuring compliance from various stakeholders. By enforcing accountability and adapting to the State's specific needs, the judiciary of Uttarakhand actively contributes to global efforts toward sustainable development and helps the State fulfill its role in the broader Sustainable Development Goals framework.

This section of the paper analyses key judgments from the Uttarakhand High Court that tackle issues including forest fires, mining impacts, solid waste disposal, and agricultural vulnerability to climate change.

Uttarakhand Forest Fires pose one of the most persistent environmental challenges, which particularly effect its dense pine and oak forests. According

¹⁴Meredith Wilensky, Climate Change in the Courts: An Assessment of Non-U.S. Climate Litigation, 26 Duke Environmental Law & Policy Forum 131-179 (2015).

¹⁵Joana Setzer & Catherine Higham, *Global Trends in Climate Change Litigation: 2021 Snapshot*. London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science., (2021).

¹⁶ Ravi Bhatia, Evolution of Judicial Activism in India, 45 Journal of the Indian Law Institute (2003).

¹⁷Austin Granville, *The Indian Constitution: Cornerstone of a nation* (Oxford University Press, 2nd ed. 2000).

to the latest data collected by Global Forest Watch, there were 324 VIIRS¹⁸ fire alerts reported between 20th November, 2023 and 18th November, 2024 considering high confidence alerts only (*The table No. 01 below shows the empirical figures*).¹⁹ Additionally, forest fires were responsible for 5.7% of tree cover loss in Uttarakhand between 2001 and 2023 (*The pie chart (table No. 02) represents the figures graphically*).²⁰

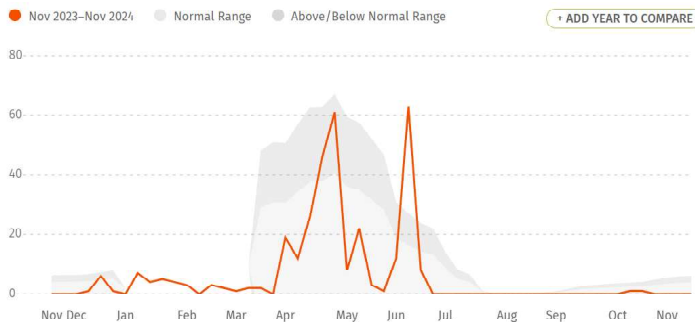


Fig.3. The empirical figures of forest fires (Source: Global Forest Watch)



Fig.4. Graphically represented figures of Forest Fires ((Source: Global Forest Watch)

In the matter of the Protection of Forest Environment, Ecology, Wild Life etc. from the Forest Fire v. Union of India & Ors (2016)²¹, the Court

¹⁸Stands for, Visible Infrared Imaging Radiometer Suite.

¹⁹GFW, “Uttarakhand, India Deforestation Rates & Statistics”, available at: <https://www.globalforestwatch.org/dashboards/country/IND/35/?category=fires>.

²⁰*Ibid.*

²¹In the matter of the Protection of Forest Environment, Ecology, Wild Life etc. from the Forest Fire v. Union of India, SCC Online (Uttarakhand High Ct. 2016).



pointed out what impact has been put on forest wealth of the State through uncontrolled and frequent forest fires and how this has impacted the overall ecology of the State. The Court also acknowledged the excessive harm caused to the State's biodiversity when in one season, 1798 forest fires were recorded which affected 3,238 trees of various species.

The Court through this judgment issued a series of directives which aimed at forest management and fire prevention. It directed the law makers to draft the National Forest Policy which will focus on forest management and which aligns with International environmental standards like the Rio de Janeiro Declaration, Kyoto Protocol etc. Apart from this, certain specific directions were also given by the Court in relation to the demarcation of the 10-kilometer eco-sensitive zone around Jim Corbett National Park and other wildlife sanctuaries to limit construction activities and safeguard wildlife. The Court also recognised the role of Fire Protection Groups, and ordered for the formation of the same which will involve the local community in forest conservation efforts. Additionally, it emphasized the importance of fire-prevention infrastructure, such as fire towers, water bodies for moisture retention, and fire-resistant clothing for officials, alongside stringent monitoring and disciplinary actions for forest officers in cases of persistent fires.

Moving forward, illegal and disorderly mining activities in Uttarakhand have led to widespread environmental degradation, particularly in mountainous regions. In the matter of *Naveen Chandra v. State of Uttarakhand* (2017)²², the Court addressed the adverse environmental impact of mining such as deforestation, soil erosion, and unregulated water cycles. Mining activities were found to increase soil erosion, altering the river flows, and disrupting the geohydrological balance which subsequently results in drying of local streams and contamination of water resources. Dust and emissions from mining have also been reported to cause respiratory health issues and harmed plant life. Along with this, the blasting activities that are carried have threatened the stability of water bodies near the area and have made the locations prone to floods and other water calamities.

The Court through this decision ordered restrictions on mining near human settlements, and made it mandatory to create a buffer zone of at least 8 kilometres from towns and villages, with a minimum separation of 4 kilometres between two or more mining sites. It directed authorities to implement measures that will prevent soil erosion which includes construction of check dams below

²²*Naveen Chandra v. Uttarakhand through its Secretary*, SCC Online (Uttarakhand High Ct. 2022).



the mining areas. Recognizing the loss of forest cover, the Court directed to launch afforestation programs and also ordered to make use of drought-resistant trees in mining-affected areas, with an aim to rehabilitate degraded land and prevent further soil erosion. Additionally, the case highlighted the necessity of conducting thorough socio-economic assessments to evaluate the impacts of mining on local communities before approving future projects.

Moving further, in *Dinesh Kumar Chandola v. Union of India and Others* (2023)²³, the Court emphasized on the risks associated with dredging and mining near ecologically sensitive areas. It raises problems when private companies are allowed to carry dredging processes. The Court feared that while conducting dredging activities, the private companies rather than taking environmental concerns into consideration, would look for their own personal benefits and would prioritize their commercial interests far more than environment protection which will result in irreversible damages to the environment.

The Court therefore restricted private entities from undertaking dredging activities, and asserted that public welfare and environmental preservation must be kept above the concerns of all. It stipulated that dredging projects be closely monitored by the State to prevent excessive exploitation and ensure that environmental considerations remain central in decision-making processes. This restriction illustrates the Court's commitment to sustainable resource management, especially in activities that could significantly alter natural landscapes.

Furthermore, in *Himadri Jal Kalyan Samiti v. State of Uttarakhand* (2018)²⁴, the Court addressed the ecological damages that are caused by improper muck disposal in rivers. The unscientific and unregulated dumping of materials that are excavated and the construction leftovers directly into the rivers have led to the increased river bed levels, have changed the water courses and have increased the flood risks. This has not only threatened the aquatic life but have also posed serious damages to human settlements and agriculture in riverine areas.

The Court mandated that the Ministry of Environment, Forest and Climate Change (MoEFCC) and the Uttarakhand Environment Protection and Pollution Control Board identify suitable muck disposal sites at least 500 meters from

²³*Dinesh Kumar Chandola v. Union of India & Ors*, SCC Online (Uttarakhand High Ct. 2023).

²⁴*Himadri Jal Kalyan Samiti v. Uttarakhand*, SCC Online (Uttarakhand High Ct. 2018).



riverbanks to prevent direct river contamination. Construction activities near riverbanks were ordered to be at a halt until these disposal sites were made operational. The Court also ordered to maintain a minimum flow of 15% downstream of weirs, barrages, and dams to sustain ecological balance. Furthermore, environmental and forest clearances for any new project were made conditional on the inclusion of proper strategies for the muck disposal in order to safeguard the aquatic ecosystem.

Another important issue of solid waste management in Uttarakhand was brought to the forefront in the case of *Indira Nagar Jan Vikas Samiti v. State of Uttarakhand* (2018)²⁵, where the Court examined the improper disposal of solid and biomedical waste near the Gola River. This river serves as an important water source for nearby settlements, including Haldwani, and the careless disposal of waste which compromises public health and contributes to greenhouse gas emissions.

The Court ordered Nagar Nigam Haldwani to establish a Solid Waste Management Plant within six months to prevent further environmental degradation and improve waste disposal practices. In addition, the Court ordered strict adherence to the Bio-Medical Waste Management Rules, 2016, and directed that biomedical waste be segregated and treated before the disposal. By enforcing these standards, the Court aimed to reduce pollution, protect public health, and curb greenhouse gas emissions. The Court had also made its efforts to align waste management practices with environmental conservation principles.

With the State's effectiveness in dealing with Solid waste going better day by day, the Solid Waste Annual Report of Uttarakhand State for the Financial Year 2022-23 reveals that out of 1152 wards, Door to door waste collection is initiated in all 1152 wards (100% achievement). Source segregation in all the 1152 wards have been started. However, 40.4% households, shops, institutions, schools etc are doing this at source. Nagar Nigam Dehradun and Haridwar have storage area while other ULB's have temporary storage area. 10 sites have been notified to be used for storage of C&D waste.²⁶

Last but not the least, increasing environmental hazards are also posing challenges on the State's agricultural sector which affects crop yield and food security. The Court dealt with this issue in the case of *Raghuvar Dutt v.*

²⁵*Indira Nagar Jan Vikas Samiti v. Uttarakhand*, SCC Online (Uttarakhand High Ct. 2018).

²⁶Uttarakhand Pollution Control Board, Government Of Uttarakhand, India, "MSW Reports", available at: <https://ueppcb.uk.gov.in/pages/display/177-msw-reports>.



State of Uttarakhand (2018) wherein it cited reports from Inter Governmental Panel on Climate Change (IPCC). It addressed the adverse effects of the rising temperature and increased proneness of the State to floods and droughts which have severely impacted the overall agricultural productivity of the State. The decline in the crop yields have impacted the lives of small-scale farmers who are more vulnerable to the climatic fluctuations.

In response, the Court promoted the development of Climate Smart Villages (CSVs) as a model for climate-resilient agriculture. The CSV initiative have made an effort to integrate traditional knowledge with scientific methods to enhance crop productivity and adapt to changing climate conditions. The Court encouraged collaboration among local communities, researchers, and policymakers to introduce climate-smart agricultural practices, including water management techniques, diversified cropping, and infrastructure to protect against extreme weather.

5. Gross Environment Product (GEP) Index: A Path breaking model adopted by the State of Uttarakhand

The primary meter for measuring economic development and advancement continues to be outdated economic measures like GDP. GDP emphasises the economic aspects and measures the market worth of both goods and services.²⁷ However, it does not go into the details of environmental costs, long term sustainability, impacts on the environment, which are important dimensions for achieving Sustainable Development Goals of the United Nation.

State of Uttarakhand, recognizing these limitations, adopted an alternative and a more comprehensive framework called Gross Environment Product Index in the year 2021. GEP provides a more comprehensive approach to sustainable development and aims to measure and coordinate human activities to enhance the environment in tandem with economic progress.²⁸

It incorporates air, water, soil and forest as key columns who's individual GEP Index provide us with the Gross Environment Product Index and acknowledges that assessment of the qualities of air, water, soil and forest ecosystem are essential for sustainable development.

²⁷Mayis Gulaliyev et al., Study of Human Capital Development, Economic Indicators and Environmental Quality, 28 Ekoloji (2019).

²⁸Anil Prakash Joshi et al., Unveiling the Green Paradigm: Introducing Gross Environment Product (GEP)-The Frontier in Ecological Growth, 146 Ecological Indicators (2023).



The AIR-GEP Index

Air quality is a determinant of ecological and human health, and is defined by the concentration of pollutants in the atmosphere. Factors like industrial emissions, urbanization and vehicular pollution have led to deteriorating Air Quality Index (AQI) levels over the decades. Conversely, mitigation efforts, such as adopting alternate sustainable energy sources, enforcing stricter pollution rules, management of pollutant emissions from the industries represent strides towards improving air quality.²⁹

The Air GEP index assesses these dynamics by tracking changes in the Air Quality and gauging the effectiveness of pollution mitigation strategies. Monitoring the levels of air pollutants including ozone, sulphur dioxide, nitrogen dioxide, nitrogen trioxide, and others contributes to the current Air Quality Index which is a composite numerical number that measures the overall quality of the air.³⁰ It serves as a lens to evaluate human led interventions aimed at ecological improvement. Air quality not only impacts human respiratory health but also poses significant impacts on ecological processes like photosynthesis, water cycle etc. Therefore, engaging with Air Quality Index is essential for shaping adaptable and proactive policies that foster a stable and tough ecological landscape.

5.1 The Water-GEP Index

Water is indispensable for sustenance of life, biodiversity and economic activities likes agriculture, running industries and energy production. Challenges such as population growth, industrialisation and climate change have exacerbated issues related to water availability and quality.³¹ Instruments like water quality index measures water health, providing insights into its suitability to different uses and identifying areas for policy or judicial interventions.³²

²⁹Yogendra Kambalagere, A Study on Air Quality Index (AQI) of Bengaluru, Karnataka During Lockdown Period to Combat Coronavirus Disease (Covid-19) Air Quality Turns 'Better' From 'Hazardous', 40 Studies in Indian Place Names (2020).

³⁰Pak Lun Fungac et al., Improving the Current Air Quality Index With New Particulate Indicators Using a Robust Statistical Approach., Science of the Total Environment (2022).

³¹Mngereza Miraji et al., The Impacts of Water Demand and Its Implications for Future Surface Water Resource Management: The Case of Tanzania's Wami Ruvu Basin (WRB), Water (2019).

³²Ashok Lumb, A Review of Genesis and Evolution of Water Quality Index (WQI) and Some Future Directions, Water Quality Exposure and Health (Mar. 11, 2023), available at : <https://link.springer.com/article/10.1007/s12403-011-0040-0>.



The Water-GEP index builds on this by recognising the value of the universal solvent. The index also focuses on sustainable practices such as rainwater harvesting, pollution reduction and efficient irrigation techniques. Policy makers, judiciary and other important stakeholders use this index to identify priority areas, allocate resources effectively and promote practices that ensure long-term ecological and economic benefits from water resources.

5.2 Soil-GEP Index

Soil health is fundamental to ecosystem as it supports plant growth, water filtration, nutrient cycling etc. However, activities like deforestation, overuse of chemical fertilizers, soil erosion, excessive rainfall, intensive agriculture, urban expansion etc. threaten soil stability. Conversely, restoration efforts like reforestation, agroecological farming etc. increase soil stability. The soil-GEP index evaluates soil productivity and ecosystem viability as it assesses factors like organic matter content in the soil, erosion rates, increased capacity of soil's water retention, land management practices etc.

The index will help policy makers, judiciary, law implementers to monitor soil health by quantifying the impact of sustainable and unsustainable practices. These practices ensure that agricultural and ecological systems thrive in the long run.

5.3 Forest-GEP Index

Forest is essential for climate regulation, biodiversity, providing clean air and water, regulating nature cycles etc. However, deforestation, urbanisation, human interventions, unsustainable practices, climate changes etc. pose risks and threats to forest ecosystems. The index evaluates essential criteria's such as tree plantations, deforestation rates and species diversity in promoting forest growth sustainably.

Additionally, the index offers useful information on how well conservation and forest management programs are working. By measuring net forest growth and benefits of biodiversity, the forest-GEP index will help in policymaking which will subsequently enhance carbon sequestration, protect ecosystem, and foster socio- economic benefits derived from healthy forests.

Thus, Gross Environment Product index offers a thorough review mechanism for assessing ecological health and human efforts to improve environmental quality. By utilising Air, Water, Soil and Forest GEP Indexes, the integrated GEP index provides a holistic multidimensional perspective on sustainable development. Unlike GDP, the GEP captures the interconnectedness



of environmental wellbeing and progress. It also aligns with SDG goals and helps various stakeholders to development, interpret and implement policies for environmental sustainability.

6. Recommendations and Concluding remarks

It will be correct to say that climate changes and environmental challenges have emerged as critical concerning areas for India, particularly for ecologically sensitive States like Uttarakhand. By means of judicial interventions and policy interventions, the State has taken meaningful steps towards achieving sustainable development. However, there are still critical issues like agricultural vulnerability, mining impacts, waste management etc. that require a more integrated approach.

The adoption of the GEP Index by Uttarakhand is an innovative shift towards measuring environmental well-being along with economic growth. This framework will provide the stakeholders' actionable insights into health of air, water, soil and forest and will help in overall development of life in a sustainable ecosystem. By addressing the issues systematically, Uttarakhand has set a precedent for other States to follow and contribute to global efforts to achieve sustainable development goals.

Recommendations

After understanding the environmental issues in the State of Uttarakhand and the efforts that has been put in by Uttarakhand judiciary to resolve the issues by sustainable means following are the recommendations that the authors recommend:

1. Strengthening the existing implementation mechanism: While the research acknowledges that Uttarakhand judiciary has laid down series of decisions in favor of sustainable environment however, there is a need of implementing and monitoring bodies who can look at the overall implementation of the directions given by the judiciary. There is also a need for a State level task force consisting of experts in the environmental field who can monitor the progress of the GEP index and reasons for any difficulties in its implementation in the State.
2. Use of Artificial intelligence and technology: Use of Technologies like Satellite imaging, weather forecast, fire predictors, artificial intelligence tools to simplify complex data, should be utilized for monitoring of different indicators of environment. These tools may help the agencies to track illegal activities that deplete the environment



and change geographics, factors responsible for the same and would in turn help in timely decision making before any risk turns into reality.

3. Involvement of local community: It is important to understand the role that local communities play in resource management. Therefore, environmental protection programs that involve local communities should be promoted. For example, participation of public in forest management, waste segregation, adopting environment friendly agricultural practices should be encouraged. These practices will be further conducted efficiently if there is an incentive-based system attached to the practices. Awareness programs, tree plantation drives, educational campaigns are further initiatives that can increase the involvement of community in environment management.
4. Enhancing coordination between various departments like pollution control boards, urban planning, mining, water resource, forests etc. will foster an integrated approach to resource conservation. Additionally, the law must also be amended to incorporate such synergies so that long term benefits and sustainability can be achieved.
5. There is also a need to enforce stricter environmental standards. The penalties should be such that to compensate the environment and not to a particular department or an individual. Penalties should be strong enough to deter non-compliance.
6. There must be maximum investment in research and development. Universities and research institutions should be sponsored to conduct studies in relation to recognizing and bringing out solutions to environmental concerns. Engagements must be made with global counter parts to develop unique yet state-centric solutions to combat environmental issues.
7. Development of GEP model to set as a pioneering bench mark for other States and countries to follow: Uttarakhand being the first State in India to have adopted this model, the plan of action of developing this model should be such scale so as to act as an example from which different States can learn and take assistance for the overall unified development of the Nation.
8. International funding mechanisms should be approached by the State of Uttarakhand to get better assistance which supplements the national assistance programs. Green financing mechanisms, such as the Green Climate Fund, may also be looked on to gain additional financial assistance.



9. With all the development and implementation taking place, it is very important to make citizens aware of the GEP Index and its significance. The Government should also publish annual reports about progress achieved using the GEP model and make it available to the public so that the benefits can be understood by one and all.

Thus, lastly it is correct to say that the innovative frameworks like GEP index, judicial mechanisms, involvement of community, international collaboration etc. can be utilized to make the State of Uttarakhand a proactive protector of the environment and resolving environment issues. A holistic, multifaceted approach will help the State in addressing the challenges effectively. These all-round recommendations not only align with SDG goals but also help in overall wellbeing of the community and economic development.

At the concluding remark, it is important to acknowledge Uttarakhand Judiciary's commending and applauding role in enforcing accountability, safeguarding natural resources and promoting resilience against climate changes.

ENVIRONMENTAL CONSERVATION PRACTICES OF MAJOR TRIBES IN MALWA: BRIDGING TRADITION WITH SUSTAINABLE DEVELOPMENT POLICIES



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Abstract

Man has a dialectical relationship with the world. On one hand he has his isolated, solitary and secluded self, cut-off from his positions and preferences in the society while on the other there is his encumbered self, deeply entrenched with his associations and membership of a community and society. Thus, the questions of existence and identity are interdependent and cannot be dealt in isolation. This holds equally and in fact much more true for the indigenous tribal communities in Malwa region of Madhya Pradesh who inhabit a particular region and whose existence is at the mercy of their identity associated with the land they inhabit. As such, these communities do not discount in any way the importance of their land, culture, heritage and communal bonds. As per the Forest Department of Madhya Pradesh, economy of about 95 lakh tribals is inextricably linked with forests. The indigenous cultural practices of these communities are shaped in such a way that they conserve, protect as well as nurture the habitat they are dependent upon. In simple words, their practices are more conservatory and protective than being exploitative unlike their so-called mainland and non-tribal fellows. Despite the invaluable worth these traditional knowledgeable practices hold, there have been few meagre attempts for their identification, acknowledgment and appreciation and also, no sincere initiatives to inculcate this precious wisdom in policy making for sustainable development have been noted. The object of this research work is to identify such tribal

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practices of environment conservation and protection in the Malwa region of Madhya Pradesh and also to find out the possibility and extent of inclusion of these practices in policies meant for sustainable development. The main aim of this research is to carve a ground for social equity and inclusivity for these communities so that they receive the benefits of sustainable development while contributing with their traditional knowledge and cultural practices. For the purpose of investigation, three major tribes in Malwa have been taken as subjects; Bhil, Bhilala and Bharela in about 12 districts. The research has been both doctrinal and non-doctrinal by reviewing the relevant tribal literature and surveying through electronic questionnaires. Due to the limitations of distance and time the resources employed are majorly secondary. From the study undertaken six practices have been identified for the purpose of this research.

Key Words: *Tribal Practices, Traditional Knowledge, Malwa Region, Sustainable Development, Social Equity*

INTRODUCTION

“To be or not to be that is the question”. The famous soliloquy uttered in Shakespeare’s words by Prince Hamlet is perhaps the most beautiful expression of dialectics of life and death that a man can investigate. Perhaps, to be or not to be is the question but being alive it is firstly and in fact more important to ask who we are. Whether we are a solitary, isolated and secluded self who is cut-off from the realities of social life and indifferent from our roles, positions and preferences in the community, or are we ‘an encumbered self’ whose true identity lies in his membership of a society, community or culture. The two questions seem to complement each other so much and so that the existence and identity are interdependent and thus, cannot be dealt in isolation. This holds equally and in fact much more true for the indigenous tribal communities in Malwa region of Madhya Pradesh who inhabit a particular region and whose existence is at the mercy of their identity associated with the land they inhabit. As such, these communities do not discount in any way the importance of their land, culture, heritage and communal bonds.

Malwa region comprises of about twelve districts: Dewas, Dhar, Indore, Jhabua, Mandsaur, Neemuch, Rajgarh, Ratlam, Shajapur, Ujjain, and parts of Alirajpur and Sehore. The tribes that inhabit these areas are *Bhil, Bhilala, Barela, Patelia, Korku, and Gond*. Among these *Bhil, Bhilala, and Barela*



form the major tribal groups in these twelve districts.¹ The total population of the *Bhil*, *Bhilala*, *Barela* and *Patelia* in Madhya Pradesh is 59,93,921 (59.94%) according to 2011 Census forming about 39.1% of total ST population in the state.² *Bhilala*, *Barela* and *Patelia* are considered related to *Bhils*³, as such the data provided in official sources with regard to the population of these four groups is combined and clubbed. Thus, whatever data is presented here includes *Patelia* group due to their close resemblance and similar status with *Bhilala*.⁴ Nevertheless, our study is focused on the three major groups of *Bhil*, *Bhilala* and *Barela*. *Bhils* form the largest tribal group in the area and are primarily agriculturalists; however, they also depend on other occupations like brewing the liquor from *mahua* flowers to complement their subsistence. *Bhilalas* are agriculturalists and are placed higher than *Bhils* in the social hierarchy due to their association with Rajputs. *Barelas* are semi-agriculturalists and mostly depend on selling of different kinds of wood.⁵ In some or the other way the survival of these groups is dependent upon the land and environment in which they inhabit and thus, these groups understand the value and worth of nature.

STATEMENT OF PROBLEM

As per the Forest Department of Madhya Pradesh, economy of about 95 lakh tribals is inextricably linked with forests.⁶ The indigenous cultural practices of these communities are shaped in such a way that they conserve, protect as well as nurture the habitat they are dependent upon. Despite the invaluable worth these traditional knowledgeable practices hold, there have been only few meagre attempts for their identification, acknowledgment and appreciation and also, no sincere initiatives to inculcate this precious wisdom in policy-making for sustainable development have been noted. This under recognition

¹Region-wise Tribes of Madhya Pradesh, available at: https://www.tadp.mp.gov.in/Public/Pages/Areawise_Tribals.aspx (last visited on November 29, 2024).

²Government of India, “Annual Report 2022-23”, 166, (Ministry of Tribal Affairs, 2023).

³Amit Soni and Lok Nath Soni, “Identity Formation and Status in a Tribe: Case of the Bhilalas of Western Madhya Pradesh”, 6 Indian Journal of Research in Anthropology 76 (2020).

⁴Lok Nath Soni and Amit Soni, “The Tribal Economy in Western Madhya Pradesh: Environmental Perspectives and Changes in Livelihood Patterns”, 9 The Asian Man 66 (2015).

⁵*Ibid* at 65.

⁶Forest Department, Government of Madhya Pradesh, available at: <https://mp.gov.in/forest-department> (last visited on November 29, 2024).



and appreciation has led to their precarious condition with only 50.6% literacy rate (a gap of 18.7%)⁷, Alirajpur being known for the lowest literacy rate in the country. Not only has this, but Left Wing Extremism (LWE) in Alirajpur, Jhabua, Ratlam, Dhar (ST priority districts⁸) has further added to their misery. With almost 17.2% of all crimes against tribal people in India⁹, Madhya Pradesh largely fails to address a major issue of under-recognition of tribals and identification of their glorified cultural practices that are inextricably linked with their identity and for that matter their very survival. Moreover, despite constituting around 7-8% of voters among the 21% of ST population, the communities of *Bhil*, *Bhilala* and *Barela* are highly under-represented in political sphere which discounts their say in major policy decisions that are meant for the development of these communities.

OBJECTIVES OF RESEARCH

1. To identify the practices for environmental conservation and protection of *Bhil*, *Bhilala* and *Barela* in Malwa region.
2. To find out the potential policy-interventions that can reconcile tradition with sustainable development.

RESEARCH QUESTIONS

1. What are the practices for environmental conservation and protection of *Bhil*, *Bhilala* and *Barela* in Malwa region?
2. What are the potential policy-interventions that can reconcile tradition with sustainable development?

RESEARCH METHODOLOGY

The research has been primarily secondary with the review of previous research works in journals, newsletters, books and other publications; however, primary data from government resources is cited to support the argumentation in the paper. Also, a major source of information has been the electronic survey and a personal telephonic interview that was undertaken to complement the research.

⁷Supra note 2 at 151.

⁸*Ibid* at 162.

⁹*Ibid* at 48.



I. Electronic Survey Report

Total 9 questions including the open-ended questions were prepared for the survey (in both Hindi and English), for which we received 28 responses from the respondents.

Table 1 – Electronic Survey Questions

S.NO.	QUESTIONS	ANSWERS
1	नमस्ते! क्या आप भील, भिलाला, या भरेला जनजाति से सम्बंध रखते हैं? Hello! Do you belong to the <i>Bhil</i> , <i>Bhilala</i> , or <i>Bharela</i> tribe?	• Yes • No
2	क्या आप वर्तमान में (या मूल रूप से) मालवा क्षेत्र में रहते हैं? Do you currently (or originally) live in the Malwa region?	• Yes • No
3	आपके अनुरूप भील, भिलाला, या भरेला जनजाति की कौन-कौन सी प्रथाओं या अभ्यासों से प्रत्यक्ष तौर पर पर्यावरण और उसकी सुरक्षा एवं संरक्षण पर प्रभाव पड़ता है? Which specific practices or customs of the <i>Bhil</i> , <i>Bhilala</i> , or <i>Bharela</i> tribes directly impact the environment and its protection and conservation, according to your understanding?	(Open-ended)
4	प्रश्न क्रमांक 3 के उत्तर में बताई गई प्रथाओं से किस तरह पर्यावरण और उसकी सुरक्षा एवं संरक्षण पर प्रभाव पड़ता है विस्तार में बताएं? Please elaborate on how the practices mentioned in the answer to question number 3 impact the environment, its protection, and conservation.	(Open-ended)
5	कौनसी प्रथाओं को राष्ट्रीय एवं राज्य पर्यावरण संबंधी नीतियों में आधिकारिक तौर पर शामिल करना चाहिए? Which practices should be officially included in national and state environmental policies?	(Open-ended)
6	सरकारों द्वारा समय-समय पर जनजाति एवं उनकी प्रथाओं संबंधित संरक्षण और बढ़ावा देने वाली कौनसी नीतियां बनाई गईं?	(Open-ended)



	What policies have governments implemented from time to time to protect and promote tribes and their customs?	
7	नीतियों के फलस्वरूप भील, भिलाला, या भरेला जनजाति को सतत विकास (स्थायी विकास) के रूप में किस तरह फायदा पहुंचा है? How have the <i>Bhil</i> , <i>Bhilala</i> , or <i>Barela</i> tribes benefited from sustainable development as a result of policies?	(Open-ended)
8	पर्यावरण संरक्षण और सुरक्षा के लिए उपयोगी प्रथाओं को आज भी पूर्ण रूप से राज्य और समाज द्वारा नहीं अपनाए जाने के पीछे के क्या कारण हो सकते हैं? What could be the reasons behind why practices beneficial for environmental protection and safety are still not fully adopted by state and society?	(Open-ended)
9	आपके स्वविवेके से हमें कुछ सुझाव जरूर दीजिए? Please give us some suggestions based on your own judgment.	(Open-ended)

Response Analysis:

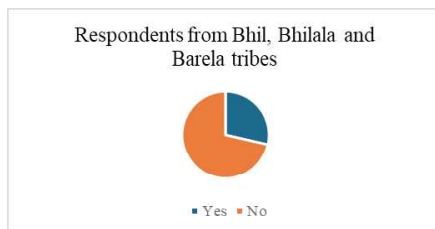


Fig 1 - Respondents from *Bhil*, *Bhilala* and *Barela* tribes

- Out of the 28 responses 8 were recorded to be from concerned groups that forms 29% of the responses. Owing to the meagre amount of the responses from subject groups we have complemented our information from the personal interview and previous research works related to the concerned groups.

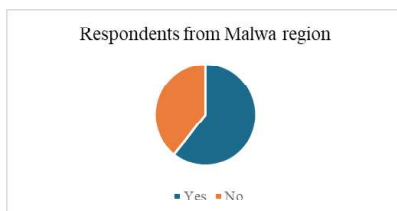


Fig 2 – Respondents from Malwa region



- Out of the 28 responses 17 are to be recorded from Malwa which forms majority of the responses and hence, form a crucial source of identifying challenges and possible solutions for our research.
- The practices that were reported include *Halma*, Medicinal Plants, *Matavan* (or sacred groves), Cultural taboos, Wildlife conservation, Jhum cultivation, Water management and keeping alive of kitchen fire. The secondary resources that were resorted to identify these practices confirm the prevalence of *Halma*, Medicinal Plants, *Matavan* and Cultural taboos.
- The overall account could be summarized as a wholesome conservational approach by the concerned groups that include land, soil, water, and forest and wildlife conservation.
- Biodiversity conservation, Community participation, Research and innovation, Promotion of use of forest produce, Organic farming, Community pledge and Traditional water conservation are major areas that were recorded.
- The recorded answers mentioned - Tribal Museum in Bhopal, Community Radio Centres, Nodal ministry for tribal welfare, Integrated Tribal Development Program (ITDP), Tribal Sub-plan (TSP), National Tribal Policy 2006 and Madhya Pradesh State Forest Policy 2005.
- Some major areas were identified in which the groups have been benefitted out of policies like education, health, cultural preservation and land rights.
- The major reasons recorded include cultural and behavioural barriers, global dependencies, weak enforcement, lack of awareness, perception as habitual offenders, alcoholism and increasing consumerism.
- The common answers were - community engagement, women and youth empowerment, cultural promotion, education and skill development and increasing tribal representation in public spheres.

II. Key Takeaways from Personal Interview

A personal interview has been undertaken with an individual who belongs to one of the subject group. The name and identity of the interviewee has been used (consent has been duly taken) to authenticate and validate the source of the information used in our research. Owing to the language barriers the interview has been conducted in Hindi and best possible attempts have been taken to translate in English (The transcript of the interview is attached as an Appendix at the end of the paper).



The following are key takeaways from the interview:

- There are no significant differences among the subject groups. Certain groups consider superior than others and do not intermarry with the inferior ones.
- These groups firmly believe in divinity of nature and thus its worship forms an indispensable part of their culture. This belief fosters a deep connection with and respect for nature, ensuring its preservation and sustainable use.
- There are various practices that reflect this pristine bond with nature like Tree Adoption. For instance, Peepal tree by Ninamas, Mango tree by Bhabhar group, and the Jamun tree by Amliyars. Once a tree is adopted, it is neither cut nor burned, and we ensure that no one else does so either.
- The notable tradition among the tribal communities of the Malwa region is the *Halma* practice. In this tradition, members of the community come together to help someone in need, whether within their own village or another village. It is a way of self-sustained living by the community.
- *Mahua* is an integral part of daily life of these groups not only as a source of income but also as part of their customs both for consumption and as offerings to deities. But other traders or legal authorities often try to stop these activities, showing the constraints of the law, and take harsh, legitimate or illegitimate actions, which sometimes leads people to resort to criminal activities.
- Mining projects in their areas to be undertaken by the government for critical minerals for which grave deforestation has been taking place posing serious threats. These activities have met strong opposition from these groups and have become a nation headline.
- The major suggestions put forth by the interviewee were:
 - i. Recognition of the extensive knowledge of herbs and medicinal plants of these groups that has travelled from generation to generation.
 - ii. For this the government should grant patent rights to the traditional medicinemen and also could provide training and raise awareness among tribal people with knowledge of medicinal herbs.



- iii. Additionally, the government should facilitate the registration and patenting of medicinal products under the names of the rightful individuals.

MAIN FINDINGS: SIX TRIBAL CONSERVATIONAL PRACTICES

- The tribal groups of *Bhil*, *Bhilala* and *Barela* adopt an approach of wholesome conservation rather than seeing environment in bits of land, water, forests etc. and as such the practices are more integrative so that the entire ecosystem including the people inhabiting it benefit and grow sustainably.
- After conducting a brief survey and a thorough review of previous researches, six major practices have been identified:
 - A. **Halma**
 - B. **Indal**
 - C. **Tree Adoption**
 - D. **Matavan**
 - E. **Medicinal Plants**
 - F. **Taboo**
- Various governmental measures and policies both at central and state level have been identified that can be instrumental in reconciliation of traditional knowledge of these communities with the proposed sustainable development policies so that they can reap the benefits of the said development while also contributing with their age old wisdom.
 - A. Joint Forest Management (JFM) initiative
 - B. Pradhan Mantri Janjatiya Vikas Mission (PMJVM) and Van Dhan Vikas Kendras (VDVKs)
 - C. 'Sankalp Se Siddhi' initiative, also known as 'Mission Van Dhan'
 - D. Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY)
 - E. National Schedule Caste/Schedule Tribe Hub Centre
 - F. Environmental Knowledge and Capacity Building



RESULT ANALYSIS AND DISCUSSION

I. Key Tribal Practices:

- i. **Halma** – The age old practice of *Bhils* of self sustenance and community participation. The practice includes community gathering to resolve an issue or problem concerned with an individual family or an entire group. Mahesh Sharma, founder of *Shivganga* and better known as Gandhi of Jhabua is credited with reviving this age old tradition in Jhabua and Alirajpur.¹⁰ Till now more than hundred trees have been planted by more than 20,000 *Bhils* and the drive is still going on in about 800 villages in the two districts. The practice received attention from then Chief Minister of Madhya Pradesh and even found mention in Prime Minister's Man ki Baat.¹¹ A person, a family or a group of family can approach the entire community through a *suchak* or the messenger who spreads the message to seek help from all, after which minimum one member from each family comes forward to offer his help with his labour and resources in exchange of a humble meal from the approaching party. The meal is however not a pre-condition of the work but a humble and sincere gesture to express gratitude.¹² The principle of collective effort and unconditional service to the community is what that makes the practice of *Halma* unique and distinct.
- ii. **Indal** – Celebrated as a festival, *Indal* stands distinct from all other traditional practices that are more of community affairs. *Indal* is hosted by a single family as a splendid meal to opportune the distribution of surplus of what they have accumulated in years with their labour to the community to respect and thank nature for its bounty that

¹⁰Good news: Meet the aam aadmis who were conferred with Padma awards“, India Today, January 19, 2019, available at: <https://www.indiatoday.in/good-news/video/good-news-meet-the-aam-aadmis-who-were-conferred-with-padma-awards-1441423-2019-01-28> (last visited on November 29, 2024).

¹¹“PM Modi talks about Halma tradition of Bhil Tribals”, Times of India, April 25, 2022, available at: <https://timesofindia.indiatimes.com/city/bhopal/pm-modi-talks-about-halma-tradition-of-Bhil-tribals/articleshow/91058907.cms> (last visited on November 29, 2024).

¹²Practicing Halma In Jhabua : A Generous Offering Of Help By The Bhil Community, available at: <https://www.mptourism.com/practising-halma-in-jhabua-madhya-pradesh.html> (last visited on November 29, 2024).



is to be shared with all.¹³ The rituals that are followed in *Indal* are worship of *Kalhari* or *Jowar* (a millet) and Kalam tree baptised in liquor distilled from *mahua* flowers, night-long singing and dancing and sacrifice of goat.¹⁴ The practice of *Indal* reflects the easy going nature of *Bhils* and related tribes while being ecologically ethical and egalitarian. In the world of wealth acquisition and accumulation, *Indal* gives a pleasant picture of humanity of shared values, shared assets and shared liabilities.

iii. Tree Adoption – The trees and vegetation have been considered sacrosanct in the tribal culture of Malwa. With intent to preserve their sanctity and ensure their uninterrupted existence different clans within these groups tend to adopt their particular trees. These are identical to the sacred groves which are worshipped in the form of cluster of trees by the entire community inhabiting a village. Adopted tree is infact particular to a clan and is considered as a family member of the clan, for example *Astra* tree by *Dindores*¹⁵. Others are *Peepal* by *Ninamas*, *Mango Tree* by *Bholdhars*, and *Jamun Tree* (Black plum) by *Amliyars* to name few.¹⁶

iv. Matavan – The forest deity *Matavan* form an essential element of environmental conservation by *Bhil*, *Bhilala* and *Barela* and serve as in-situ conservation sites of forests. These are areas where the village deity resides, and such area were designated sacred by elders of the past generations and no one seems to know its date of formation as these vegetated patches have been protected by their belief system since time immemorial. There is little mention about their conservation initiatives in anthropological aspects. There are no written books on religious practices or any literature that hands over ritualistic practices to the younger generation. They believe that their Deity protects and resides in that area and watches over them, guides them and protects them from all evil and even brings upon them difficult times if they disobey the laid down norms or taboos of the community.¹⁷ The trees

¹³Rahul, “Reasserting Ecological Ethics: Bhils’ Struggles in Alirajpur”, 32 Economic and Political Weekly 87 (1997).

¹⁴*Ibid*

¹⁵Sameeta Rajora and Hiteshkumar Solanki, “Sacred Groves as Centres Of Cultural and Biodiversity Conservation: A Case Study of Jhabua District of Madhya Pradesh”, 10 International Journal of Recent Scientific Research 32212 (2019).

¹⁶*Ibid*.

¹⁷*Ibid* at 32210.



in the area form distinct identity from other trees with clay urns and clay dolls in the shape of horses kept below them and seem like guarding a shrine with leaves of canopy.¹⁸ The unwritten yet followed for centuries by generations the practice of *Matavan* speaks of the paramount value of forest conservation in the eyes of these groups.

- v. **Medicinal Plants** – The tribal groups of *Bhil*, *Bhilala* and *Barela* practice their age-old wisdom of traditional medicine through their medicinemen *Badwa* who keeps secrecy about the use of these plants. Some examples are: *Andijhara* (Apamarga or chaff-flower) for sukha rog¹⁹, *Bela* (stone apple) for stomach disorders²⁰, *Bhabdi* (elephant foot yam) for snake bites²¹, *Aak* (apple of sodom) for scorpion bites²², *Shisam* (*Albizia amara*) for jaundice, *Hingot* (Egyptian balsam) for diabetes²³ and *Saptaparni* (milkwood) for tuberculosis²⁴ to name few. This secret wisdom of medicinal plants forms a potent source of India's medicine culture that includes Ayurveda, Yunani, Siddha, and Homeopathy along with Aloepathy and can serve as a separate branch of study under the broader Ayurveda. In this attempt the recognition of this knowledge and the traditional medicinemen who carry it is the tool which we advocate for.
- vi. **Taboo** - Taboos in general can be termed as those practices that are prohibited for those acts being considered accursed associated with something that is too sacred to be violated or interfered with. These can be sacred plants and trees, community land (considered

¹⁸From Faith To Healing: Matavan, The Guardian Spirit Of The Forest Of Jhabua!, available at: <https://www.mptourism.com/matavan-guardian-spirit-of-jhabua-forest.html> (last visited on November 29, 2024)

¹⁹J. K. Maheshwari, B. S. Kalakoti and Brij Lal, "Ethnomedicine of Bhil Tribe of Jhabua District, M. P." 5 *Ancient Science of Life* 255-261 (1986).

²⁰*Ibid.*

²¹*Ibid.*

²²Sainkhediya J and Trivedi P, "Some Medicinal Plants Of Sendhwa District Barwani M.P." 4 *IJCIRAS* 34 (2021).

²³Dinesh Kumar Dahare, "Study on ethnobotanical utilization of plant resources of district Shajapur, Madhya Pradesh, India", 7 *International Journal of Botany Studies* 170(2022).

²⁴Vijay V. Wagh and Ashok K. Jain, "Traditional herbal remedies among Bheel and Bhilala tribes of Jhabua District Madhya Pradesh" 1 *International Journal of Biological Technology* 21 (2010).



as an abode of village deity), rivers or water bodies and certain animals. A recent example of such Taboo can be seen in Alirajpur where Coal India Ltd. (CIL) has won the bid for critical mineral mining in Khattali Chotti graphite block.²⁵ Although the aspirations of reduced import dependence and accelerated green energy transition (graphite being an important element in lithium-ion batteries that are crucial for electric vehicles) makes this project not only desirable but need of the hour, the local tribal inhabitants of the area has many apprehensions with regard to mining in the area owing to their existing beliefs of the sacredness of the land of Khattali Chotti as reported by our interviewee. Supporting taboos for their end of nature conservation needs strong justification for their conflict with development agendas and thus, become major point of friction with state and sustainable development. The researchers however support this form of conservational approach for both utilitarian and deontological reasons. The utilitarian reason is simply the low-cost and more effective mode of nature conservation by persons best equipped with age old knowledge of the area. The age-old belief of locals is built upon years of experiences from the repercussions of breaching the taboo, which cannot be discounted, and hence, the utilitarian calculus favors such beliefs. Deontologically, these should be respected for their sanctity in the eyes of the people following them. Thus, taboo form an important conservational practice.

II. Policy Interventions:

- i. Joint Forest Management (JFM) initiative** – JFM is a part of National Forest Policy 1988 with the objective to improve the forest cover in India. Madhya Pradesh being the pioneering state²⁶ of this initiative includes it in its State Forest policy of 2005. This initiative can serve as a potent tool for inclusive and participatory forest conservation and sustainable policy-making. Some of its features that reflect this potential are:
 - **Village level Joint Forest Management Committees (JFMC)** that lie at core of implementation of this scheme. These include villagers living within 5 km radius from forests and reserves 30%

²⁵Nitin Kumar, “Coal India forays into critical mineral mining in Madhya Pradesh“, Business Standard, July 22, 2024, available at: Coal India forays into critical mineral mining in Madhya Pradesh | News - Business Standard (last visited on November 29, 2024).

²⁶Supra note 6.



of the seats for the women for both as members and chairpersons (3.10.1).²⁷

- **Preparation of micro-plans** by these committees which are then inculcated by various departments for rural development works (3.10.2).²⁸
- **Establishing partnerships** with local tribal communities for use of their traditional knowledge regarding bio-resources of that area (3.10.5).²⁹
- **Registration of bio-geographic site specific plant species** under Geographic Indications of Goods (Registration and Protection) Act, 1999 to share the benefit of traditional knowledge with local tribal people (3.10.8).³⁰

ii. **Pradhan Mantri Janjatiya Vikas Mission (PMJVM) and Van Dhan Vikas Kendras (VDVKs)** – The Pradhan Mantri Janjatiya Vikas Mission (PMJVM) which is to be implemented till year 2025-26 is designed to enhance tribal entrepreneurship and create livelihood opportunities.³¹

Some of its features are:

- Promoting **efficient and equitable use of natural resources**, including agricultural products, Non-Timber Forest Products (NTFPs), and non-farm enterprises.³²
- The **Tribal Cooperative Marketing Development Federation of India (TRIFED) as the central implementing agency** for this initiative which either itself or implements through State Implementing Agencies (SIAs).³³
- **Supports the theme of “Vocal for Local by Tribal,”** aiming to empower tribal communities through local resource utilization.³⁴

²⁷Government of Madhya Pradesh, “Madhya Pradesh State Forest Policy 2005”, 15 (2005).

²⁸*Ibid* at 16.

²⁹*Ibid*.

³⁰*Ibid*.

³¹Government of India, “Pradhan Mantri Janjatiya Vikas Mission Reference Note” (Parliament Library and Reference, Research, Documentation And Information Service, 2023).

³²*Ibid*.

³³*Ibid*.

³⁴*Ibid*.



- Financial assistance by Ministry of Tribal Affairs for the **procurement of Minor Forest Produces (MFPs) at Minimum Support Price (MSP)**.³⁵
 - **Development of infrastructure for MFP and non-MFP** value chains like Haat Bazars.³⁶
 - Tribal Community owned **Van Dhan Vikas Kendras (VDVKs)** and **Van Dhan Producer Enterprises (VDPEs)** to be set-up for manufacturing to branding and marketing of tribal made products.³⁷
- iii. **‘Sankalp Se Siddhi’ initiative, also known as ‘Mission Van Dhan’** –Through this mission, TRIFED aims to expand its operation through convergence of various schemes of different ministries and departments and launch various tribal development programmes in mission mode. Major of them includes **Van Dhan tribal start-ups**.³⁸
- iv. **Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY)** – Modified name for Special Central Assistance to Tribal Sub-Scheme (SCA to TSS), this scheme aims to supplement the efforts of State Governments for development and welfare of tribal people by extending Special Central Assistance as an additive to the State Tribal Sub-Plan (TSP).
- **Need Assessment Exercise** for identification of gaps in with regard to Monitorable Indicators such as health, sanitation, nutrition, agricultural best practices etc.
 - **Preparation of Village Development Plan** based on Need Based Exercise.³⁹

³⁵*Ibid.*

³⁶*Ibid.*

³⁷Van Dhan Vikas Yojana, available at: <https://trifed.tribal.gov.in/pmvdvdy> (last visited on November 29, 2024).

³⁸“Shri Arjun Munda, Minister for Tribal Affairs launches the tribal livelihoods initiative “Sankalp Se Siddhi – Mission Van Dhan””, Public Information Bureau, June 15, 2021, available at: <https://pib.gov.in/PressReleasePage.aspx?PRID=1727385> (last visited on November 29, 2024).

³⁹“Pradhan Mantri Adi Adarsh Gram Yojna aims at transforming villages with significant tribal population into model village”, Public Information Bureau, December 12, 2022, available at: <https://pib.gov.in/PressReleasePage.aspx?PRID=1882862> (last visited on November 29, 2024).



- v. **National Schedule Caste/Schedule Tribe Hub Centre** – To provide professional support to Entrepreneurs from Scheduled Castes and Scheduled Tribes, National SC ST Hub has been set-up to fulfill the obligations under the Central Government Public Procurement Policy for Micro and Small Enterprises Order 2012, adopt applicable business practices and leverage the Stand-Up India initiatives.⁴⁰ It's main aim to encourage entrepreneurship among these groups and increase the share of SCs and STs in procurement by Centre to atleast 4%.⁴¹

Environmental Knowledge and Capacity Building – Ministry of Environment, Forest and Climate Change (MoEFCC) has envisaged various schemes to synergize with the Lifestyle For Environment (LiFE) campaign, the India's led global mass movement to push individuals and communities to act in way to protect and preserve environment.⁴²

- **Environment Education Programme (EEP)** a scheme under above initiative aims to provide financial assistance to the Implementing/ Nodal Agencies of States/UTs, including Madhya Pradesh, for organising various awareness programmes. In the State of Madhya Pradesh, 5,200 Eco-clubs (100 each in 52 districts) were supported during the year 2020-21 and 15,600 school Eco-clubs (300 each in 52 districts) were supported during the year 2021-22 under the National Green Corps (NGC) Programme. 100 college Eco-clubs in Madhya Pradesh were also supported during both these years. Major activities conducted by Eco-clubs include, debates, slogan writing, drawing/ painting, poster making, quiz, wall painting, action-oriented activities like energy audit, water audit, plantation, rallies, exhibition, waste segregation, cleanliness drive, etc.⁴³

III. Key Challenges

Despite the years of practicing sustainability in their conservational and protective customs the *Bhils*, *Bhilalas* and *Barelas* struggle to receive their share of benefits accruing from sustainable development policies. From the analysis

⁴⁰National SC ST Hub, available at: <https://scsthub.in/key-objectives> (last visited on November 29, 2024).

⁴¹*Ibid*

⁴² “Adopting environment friendly lifestyle”, Public Information Bureau, August 03, 2023, available at: <https://pib.gov.in/PressReleasePage.aspx?PRID=1945469> (last visited on November 29, 2024).

⁴³*Ibid*.



done so far we have found ample policy initiatives to bridge the traditional knowledge of these groups with sustainable development. However, the inclusion of these practices seems difficult owing to many reasons apart from the administrative ones that we have kept outside of the ambit of this research. Thus, we have only focused on those challenges that are associated with their cultural and customary landscape.

- i. **Alcoholism** – The inextricable or the unhyphenated association of alcohol (the *mahua* liquor) of these groups often isolates them from their non-tribal counterparts who resist including it as part of their culture and even some consider it as a sin. The isolative tendency of alcoholism in culture hinders their inclusion in the mainstream society which is reflected at the level of policy-making.
- ii. **Consumerism** – The easy going lifestyle and happy go lucky nature of these groups of eating, drinking and merry-making with no interest in wealth accumulation gives them the image of consumerist. They are considered to be disinterested in money-making for surplus with earning only for sustenance. This perception discounts their developmental aspirations to achieve non-traditional roles or occupations outside their culture like any other citizen and to earn a better living or get any job of his/her choice.
- iii. **Perception as Habitual Offenders** – The British legacy of considering tribals as habitual offenders reflects in contemporary society. Though the study groups do not fall into the de-notified or nomadic categories but the notion of mainstream society of considering ‘tribals’ a one and distinct group often gives them this tag.
- iv. **Primitive Agricultural Practices** – The agriculturalists within the groups still rely on the primitive practices like slash and burn that come in direct conflict with the conservational policies of the government. Practices like these, creates a friction between the two parties and resentment on the part of subject groups towards the government and its policies.
- v. **Language Barriers** – The regional language dependence and poor literacy levels of subject groups create a barrier in their bargain for their claims before government. Moreover, the expression of their knowledge let’s say for an example of medicinal plants does not get deliver owing to the language differentials.



- vi. **Poor Representation in Decision Making** – With only 5,212 PESA Gram Panchayats under the Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA) for 12,350 PESA villages⁴⁴ Madhya Pradesh stands with high under representation and poor local governance in tribal areas. It is only in the year 2022 that the state has notified its rules to implement the said act⁴⁵ in order to give more constitutional rights to these groups to reap the benefits of natural resources. The poor literacy levels have kept them ignorant of their political rights and thus affected their participation in democratic processes.

IV. Possible Solutions: Participatory And Representative Policy Interventions

- i. Use of ages of experience of community welfare and public works gained through practicing *Halma*. The Gram Sabhas or Gram Panchayats established under PESA Act could be established on the lines of this tradition which could be a slight departure from the formal structured organisation to keep the essence of the tradition intact.
- ii. Compulsory licensing and patenting of traditional medicinal plants and their knowledge and use under the JFM initiative along with the active interventions by TRIFED to regulate their marketing and produce.
- iii. The tradition of *Matavan* could be a potent tool in implementing JFM in the forest areas.
- iv. Under the Mission LiFE and its associated schemes the practice of *Indal* should be highlighted and to be promoted to include as sustainable lifestyles as against accumulative and exploitative ones.
- v. The concept of tree adoption could be linked with the Adi Adarsh Gram Yojana as a best agricultural practice.
- vi. The forest produce and manufactured entities out of the resources of forest should be given ample recognition and due respect including *mahua* liquor to do away with the ill image of ‘alcoholics’, so that

⁴⁴Presentation of Madhya Pradesh on PESA, available at: <https://panchayat.gov.in/document/presentation-of-madhya-pradesh-on-pesa/> (last visited on November 29, 2024).

⁴⁵“Madhya Pradesh notifies PESA Rules on the occasion of Janjatiya Gaurav Divas”, Public Information Bureau, November 17, 2022, available at: <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1876869> (last visited on November 29, 2024).



the groups receive their adequate share in benefit accrued out of resources while demanding respect for their culture and customs.

CONCLUSION

Perhaps the answer to Prince Hamlet cannot be objective for 'being' is highly subjective. The *Bhils*, *Bhilalas* and *Barelas* of Malwa have been living this subjectivity since ages. The being or not being cannot be simply found as mere physical or metaphysical existence but in deep entrenched social realities that an individual wears as its skin. The tribal identity of these groups have been this skin that has given them distinctness and a unique standing in society. With their age-old unique conservational practices these groups stand at a much higher pedestal than their non-tribal counterparts in terms of nature responsiveness and indebtedness. The potential barriers however seem to dislocate them from their position of merit that necessitate urgent and practical solutions. Such solutions as participatory and not merely inclusive can be the only way out to maintain their distinct and edged standing. Their existence or 'being' can only be investigated with their truly realized and wholly recognized identity and that identity lie at much extent in their traditional environmental conservational practices

Appendix

Transcript of Personal Interview

Question: Hello! Dashrath ji, could you please provide a detailed introduction about yourself and your tribe?

Answer: My name is Dashrath Ninama, and I live in the Petlawad region of Jhabua district in Madhya Pradesh. I belong to the *Bhil* tribe. In our community, there are various sub-divisions such as Bharela, Bhuriya, Bhabhar, Katariya, and others, among which I belong to the Ninama group.

Question: What is the relationship between *Bhil*, *Bhilala*, and *Barela* tribes?

Answer: These are all sub-groups of the tribal communities, and culturally, there are no significant differences among them. However, certain groups perceive themselves as superior to others. For instance, the *Barela* consider themselves superior to the *Bhil* and do not intermarry with them.

Question: According to you, how close is the tribal community to nature?

Answer: In our community, we consider nature to be everything. Since ancient times, we have worshipped elements of nature such as trees, water,



and fire, considering them as gods. We do not recognize any other deity apart from nature. However, in recent times, like other communities, our community has also started worshipping other gods. To preserve nature, we have a tradition of adopting trees, which is a practice aimed at protecting it.

Question: According to tribal people, how justified is it to consider nature as God?

Answer: Tribal people firmly believe that considering nature as God is completely justified. For them, nature is the foundation of life, and they regard its elements - trees, water, and fire as divine. This belief fosters a deep connection with and respect for nature, ensuring its preservation and sustainable use.

Question: Explain in detail the tradition of tree adoption by tribal people.

Answer: In our community, the practice of adopting trees is considered both a social and religious responsibility. Different groups within the community adopt specific types of trees and worship them. For instance, we Ninama have adopted the Peepal tree, the Bhabhar group has adopted the Mango tree, and the Amliyar group has adopted the Jamun tree. Once a tree is adopted, it is neither cut nor burned, and we ensure that no one else does so either. This tradition plays a crucial role in protecting trees and fostering a sustainable relationship with nature.

Question: Can you tell us about any specific social tradition?

Answer: One notable tradition among the tribal communities of the Malwa region is the *Halma* practice. In this tradition, members of the community come together to help someone in need, whether within their own village or another village. They ensure that no individual or family facing difficulties is left alone and provide all possible assistance. For instance, they support bereaved families or work collectively to arrange water resources for a village. Through this practice, some villages have undertaken activities like collective tree plantation to create small forests and the construction of small ponds. This tradition has been recognized and honored by the honorable Prime Minister as well.

Question: How important is *Mahua* for the tribal community of Malwa?

Answer: *Mahua* is an integral part of our daily life because it is a source of income for us. We can easily collect it and sell it in the market, and sometimes, we even make liquor from it, which we sell for good prices. However, it has also become a part of the tribal way of life. Consuming



Mahua liquor is a part of our life, and it is used in religious ceremonies to offer to deities. But other traders or legal authorities often try to stop these activities, showing the constraints of the law, and take harsh, legitimate or illegitimate actions, which sometimes leads people to resort to criminal activities.

Question: What steps should the government take regarding *Mahua*?

Answer: The government could create certain regulations and allow specific tribal communities to sell *Mahua* and its liquor while adhering to these rules. This would provide the tribal people with a source of income, and all activities would be monitored under the law. Recently, the state government has been considering promoting *Mahua* from a commercial perspective, separate from liquor, for the tribal population. This would help raise awareness and encourage people to manage and trade *Mahua* correctly under government guidance.

Question: What challenges are tribal communities currently facing, according to you?

Answer: Presently, in Alirajpur district, private and government companies, in collaboration with the Indian government, are planning to undertake industrial activities in tribal areas. They intend to dig mines to extract metals used in batteries, which could lead to the cutting down of millions of trees. This poses a serious threat to the destruction of small and large forests in the region and raises the likelihood of severe environmental pollution in the future.

As I mentioned earlier, tribal people worship trees as gods and consider nature as divine. They strongly oppose this activity and are unwilling to let it happen. Their protest has gained attention at the national level. This issue highlights the clash between industrial development and the preservation of the environment and cultural beliefs of tribal communities.

Question: What should the government do for tribal communities in other areas?

Answer: One of the most remarkable aspects of tribal communities is their deep connection with nature, which has led to their extensive knowledge of herbs and medicinal plants over thousands of years. This knowledge benefits society as a whole, as tribals can treat serious illnesses using herbal remedies made from flowers and leaves. They also sell these remedies in villages and cities.



Despite this, their contribution and expertise in this field are not recognized, nor do they receive adequate benefits. Often, experts take herbs from tribal people, sell them in the market at higher prices, or even get them patented under their own names in the medical field.

The government can take strict measures to address this issue by providing training and raising awareness among tribal people with knowledge of medicinal herbs. Additionally, the government should facilitate the registration and patenting of medicinal products under the names of the rightful individuals.

ENVIRONMENTAL JURISPRUDENCE AND INDIAN JUDICIARY: LANDMARK RULINGS, DOCTRINES, AND JUDICIAL ACTIVISM FOR SUSTAINABLE DEVELOPMENT



Ravi Kant*

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Abstract

In recent decades, environmental protection in India has gained significant momentum, largely driven by the adverse effects of rapid industrialization, commercialization, and population growth. These developments have led to increased environmental degradation, compelling the legal and judicial systems to develop a robust framework for environmental protection. Environmental jurisprudence in India is shaped by the interplay of legislative enactments, executive policies, and most notably, judicial interventions. While the legislative and executive branches have contributed, their efforts have often been criticized as inadequate or inconsistent. In contrast, the Indian judiciary has been pivotal in advancing environmental jurisprudence through judicial activism.

*This paper explores the transformative role of the judiciary in environmental protection, focusing on mechanisms such as Public Interest Litigation (PIL) and continuous mandamus. The judiciary has addressed environmental challenges through these tools, often stepping in where the legislative and executive branches have fallen short. The paper discusses key judicial doctrines propounded by Indian courts, including the **Polluter Pays Principle**, the **Precautionary Principle**, and the **Public Trust Doctrine**, which have become fundamental to environmental governance in the country.*

*In addition, this paper reviews landmark judgments that have significantly impacted environmental jurisprudence, such as the **MC Mehta***

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cases and other significant rulings where courts have balanced economic development with ecological sustainability. Despite these achievements, the paper also critically examines instances where judicial interventions have failed to fully realize their potential in safeguarding the environment, highlighting missed opportunities and inconsistencies.

Keywords: *Environmental Jurisprudence, Judicial Activism, Environmental Doctrines, Sustainable Development, Environmental Protection in India.*

Introduction

Human existence and environment relationship is foundational to all. Human civilization has been dependent on and built on its birthplace, nature, since time immemorial. Indian early philosophy, particularly Vedic, focused upon this harmony between humans and nature, and the environment was recognized as a sacred being to be recognized and protected. The Vedic Aryans used to worship the natural elements – earth, water, fire, air and space – it is said the natural elements sustains the life. But human progress was badly disrupted with the industrialization, commercialization and population growth. As a result of this imbalance, we have witnessed unprecedented levels of environmental degradation—deforestation, the pollution of air and water, loss of biodiversity, and intensification of the global warming—because communities have gained routine control over nature.

Environmental protection has become one of the most pressing challenges of 21st century in response to these challenges. Through efforts of global summits and national policies, efforts have been made to solve global climate crisis, promote sustainable development, and conserve ecosystem. Yet in India, the legislative and executive branches of government have sometimes fallen short when the provision of good solutions needed for counteracting environmental crises was required. There has been vast gap between policy formulation and implementation, because economic priorities time and again override environmental concerns. Here the judiciary has been very important in closing the gap between environment laws and their enforcement.

However, for Indian judiciary's role in environmental protection to be commended, there are some challenges. Balancing conflicting demands of economic development verses environmental preservation, the Judiciary often gets involved. But while it has really made an impression on environmental law, there have also been times when judicial decisions haven't reached their long-term sustainability goals. While the courts remain important in defining



India's environmental future by making the laws into real things rather than formalities, the laws don't do any good unless they are enforced.

In this context, this paper explores the evolution and impact of Indian environmental jurisprudence, specifically focusing on the judiciary's contribution to the development of environmental law through its landmark judgments, doctrines, and proactive interventions.

Historical Evolution of Environmental Jurisprudence in India

Ancient Perspective

India's environmental consciousness is as deeply embedded in its past as its respect and reverence for nature as a sacred thing. Ancient shamanic traditions celebrated natural elements of earth, water, fire, air, and space to create harmony with nature. In the field of Vrikshayurveda, the ancient science of plant life, sustainable agriculture, and conservation were practiced. The values these animals (and the forest itself) stood for were institutionalized during the Maurya period when Emperor Ashoka issued such edicts for protecting forests and wildlife, an early understanding of ecological balance. India's environmental governance is based on these cultural and ethical traditions.¹

Colonial and Post-Independence Legislation

Resource extraction took priority over environmental concerns during British rule. Timber and mineral exploitation were accompanied by widespread deforestation and degradation. These early laws, however, had been worked out, namely the Indian Fisheries Act (1897) and the Factories Act (1948), which were related to pollution and other resource management. Industrial growth remained a priority post-independence at the cost of environmental protection. During the mid-20th century, rapid development was accompanied by unchecked exploitation of natural resources, leading to enormous ecological damage.²

Modern Environmental Legislation

The 1972 Stockholm Conference marked a turning point, pushing India to enact landmark environmental laws:³

¹Jyoti D Patel, *Environmental Protection in Ancient India*, 5 (2017).

²Saumya Umashankar, *Evolution of Environmental Policy and Law in India*, (2014), available at: <https://papers.ssrn.com/abstract=2508852> (last visited Dec 24, 2024).

³"Principle 21 of Stockholm Declaration | International Environmental Law | PUBLIC INTERNATIONAL LAW 2024", available at: <https://www.respicio.ph/bar/2025/political-law-and-public-international-law/public-international-law/international-environmental-law/principle-21-of-stockholm-declaration> (last visited November 16, 2024).



- **Water Act (1974):** Created Pollution Control Boards to regulate water quality.⁴
- **Air Act (1981):** Focused on industrial and vehicular air pollution.⁵
- **Environment Act (1986):** Passed after the Bhopal Gas Tragedy, it empowered the government to comprehensively address all pollution forms.⁶

Subsequently, the Ministry of Environment and Forests (MoEF) furthered institutionalized environmental governance for implementing laws and conservation policies. The establishment of the National Green Tribunal (NGT) in 2010, on the one hand, and the making of the legal framework for biodiversity conservation and pollution control were also positively accepted.

India's Participation in International Treaties

There is India's representation in treaties like the 1992 Rio Conference,⁷ which emphasizes biodiversity conservation and climate change mitigation. The Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) exemplify India's efforts to reconcile development with ecological sustainability⁸ by moving from a national to a global vision.⁹

Through domestic laws and international engagements, India's environmental jurisprudence has evolved to address both local and global challenges, emphasizing the need for sustainable development.

Constitutional Provisions for Environmental Protection

Over time, the Constitution of India, as the ultimate authority of the environment, has developed into a solid sanctuary and a robust framework for

⁴Water (Prevention and Control of Pollution) Act, 6 (1974).

⁵The Air (Prevention and Control of Pollution) Act, 14 (1981).

⁶The Environment (Protection) Act, 29 (1986).

⁷United Nations Department of Economic and Social Affairs, Review of Implementation of Agenda 21 and the Rio Principles, (2011).

⁸Ajit Menon, "Situating Law: Adivasi Rights and the Political Economy of Environment and Development in India", *Law, land use and the environment: Afro-Indian dialogues* (2008).

⁹Will Steffen et al., "The Anthropocene: Conceptual and Historical Perspectives", 369 *Philos. Trans. R. Soc. Math. Phys. Eng. Sci.* 842 (2011)



environmental governance. The original Constitution of 1950,¹⁰ however, did not explicitly recognize environmental rights or responsibilities, but amendments and judicial interpretations of the law have created a strong legal basis for protecting the environment.¹¹ The state is underlined to bear the primary responsibility for protecting natural resources and citizens' right to live in a clean and healthy environment.

Fundamental Right - Article 21: Right to Life

Article 21¹² guaranteeing the right to life and personal liberty has been substantially expanded in meaning by the judiciary. The Supreme Court has further ruled that this right includes a right to a clean and healthy environment.¹³ In *Subhash Kumar v. State of Bihar* (1991)¹⁴ the court has also stressed that pollution-free air and water are part of the State of Bihar. Such interpretations have given rise to judicial interventions, manifesting the state's obligation to protect ecological balance and public health.¹⁵

Directive Principles of State Policy (DPSP)

The Directive Principles are given in Part IV of the Constitution & govern the state in enacting laws & policies.

- Article 48A (introduced through the Constitution's 42nd Amendment in 1976) directs the state to 'protect and improve the environment and protect and safeguard forests and wildlife.' This provision serves as a cornerstone for laws and policies promoting ecological conservation.¹⁶

¹⁰Constitution of India 1950, available at: https://www.constitutionofindia.net/constitution_of_india.

¹¹Adv Hemant More, Constitutional Provisions for Environment Protection, *The Legal Quotient* (Sep. 17, 2024), available at: <https://thelegalquotient.com/social-laws/environmental-laws/constitutional-provisions-for-environment-protection/4914/> (last visited Dec 24, 2024).

¹²Constitution of India 1950, *supra* note 10.

¹³Get link et al., *The Wildlife Protection Act, 1972: A Pillar of Conservation in India*, (Oct. 13, 2024), available at: <https://www.gkloka.com/2024/10/the-wildlife-protection-act-1972-pillar.html> (last visited Dec 24, 2024).

¹⁴*Subhash Kumar v. State of Bihar*, AIR 420 (1991), available at: <https://indiankanoon.org/doc/1646284/> (last visited Dec 24, 2024).

¹⁵D. Gopal, "Water Resources in India and Sustainable Solutions for Use, Conservation and Protection of Water – A Socio-Legal Study", 4 *Int. J. Law Educ. Soc. Sports Stud. (IJLESS)* 8 (2017).

¹⁶Lennon Haas, *Saving the Trees One Constitutional Provision at a Time: Judicial Activism and Deforestation in India*, 40 *Ga. J. Int. Comp. Law* 751 (2013).



- Article 47 emphasizes public health as a primary duty of the state, implicitly linking it to environmental protection by underscoring the need for a clean and pollution-free environment.¹⁷

Fundamental Duties

The 42nd Amendment also introduced Fundamental Duties in **Article 51A(g)**, which obligates every citizen to “protect and improve the natural environment” and demonstrate compassion for living creatures. While these duties are not legally enforceable, they act as moral obligations, fostering a culture of environmental stewardship and encouraging individual participation in conservation efforts.

Legislative Powers and Environmental Governance

Schedule VII of the Constitution divides legislative powers between the Union and states:

- **Union List:** Covers subjects like atomic energy and minerals, with environmental implications.
- **State List:** Includes areas like public health, agriculture, and water.
- **Concurrent List:** Addresses forests and wildlife, where both Union and state governments can legislate. In case of conflict, Union law prevails, ensuring cohesive national policies.

International Treaties and Article 253

Article 253¹⁸ empowers Parliament to legislate on matters listed under the State List for purposes of implementation of international treaties. This provision has helped India adopt environmental standards the world has been adopting. For example, after the 1972 Stockholm Conference,¹⁹ India brought in important laws like the Water Act (1974) and the Air Act (1981). Similarly, commitments made at the **1992 Rio Conference** have influenced domestic policies promoting sustainable development and biodiversity conservation.²⁰

¹⁷“Environmental Protection: Comprehensive Analysis in India (2024) – Global Regulatory Insights”, available at: <https://globalregulatoryinsights.com/insight/environmental-protection-comprehensive-analysis-in-india-2024/> (last visited November 16, 2024).

¹⁸Constitution of India 1950, *supra* note 10.

¹⁹“Principle 21 of Stockholm Declaration | International Environmental Law | PUBLIC INTERNATIONAL LAW,” 2024, available at: <https://www.respicio.ph/bar/2025/political-law-and-public-international-law/public-international-law/international-environmental-law/principle-21-of-stockholm-declaration> (last visited November 16, 2024).

²⁰Margaret Araujo Dantas et al., Review of Implementation of Agenda 21 and the Rio Principles, December 2011.



The Constitution's Fundamental Rights, Directive Principles, Fundamental Duties, and judicial interpretations ensure environment-friendly governance in India. However, the development of sustainability is mainly due to the primary responsibility of the state, as well as citizens. Together, these mechanisms allow a balanced approach between development and ecological preservation.

Judicial Activism and Environmental Jurisprudence

Judicial activism is the Indian judiciary's role in environmental protection. It has often substituted for inaction or inefficiency on the part of the executive and legislative branches in an otherwise predatory framework. In order to take this forward, the courts have created new avenues for the expansion of environmental rights with the submission of Public Interest Litigation (PIL), epistolary jurisdiction, and continuous mandamus.²¹

Public Interest Litigation (PIL)

In Indian environmental jurisprudence, PIL has been a game changer. Before implementing the PIL in the late 1970s, only the directly affected people could approach the courts, but the emergence of the PIL has enabled people and organizations to take note of public issues. It created avenues through which public environmental problems could be addressed, in the first instance, when governments were sloppy.²²

Some landmark PIL cases include:

- **Rural Litigation and Entitlement Kendra v. State of UP (Doon Valley Case)**²³: The Supreme Court ordered a ban on limestone mining in the Doon Valley, prioritizing ecological preservation over economic interests.
- **M.C. Mehta v. Union of India (Taj Trapezium Case)**²⁴: The court

²¹Rachit Garg, All You Need to Know about Public Interest Litigation (PIL), iPleaders (Feb. 23, 2021), available at: <https://blog.ipleaders.in/need-know-public-interest-litigation-pil/> (last visited Dec 24, 2024).

²²Alan Diduck, Kirit Patel and Aruna Kumar Malik, "Advancing Environmental Justice for Marginalized Communities in India: Progress, Challenges and Opportunities" *Advancing Environmental Justice for Marginalized Communities in India: Progress, Challenges and Opportunities* 1–243 (2021).

²³*Rural Litigation And Entitlement v. State Of U.P.*, AIR 652 (1985), available at: <https://indiankanoon.org/doc/1949293/> (last visited Dec 24, 2024).

²⁴*M.C. Mehta v. Union of India*, AIR 1086 (1987), available at: <https://lawtimesjournal.in/m-c-mehta-v-union-of-india-1986-taj-trapezium-case-case-summary/> (last visited Dec 24, 2024).



mandated cleaner fuels and relocated polluting industries to protect the Taj Mahal from industrial pollution.

- **M.C. Mehta v. Union of India (Ganga Pollution Case)**²⁵: The court issued directives to clean the River Ganges, close polluting industries, and impose penalties for non-compliance.

These cases highlight the judiciary's role in addressing large-scale environmental challenges and setting precedents for sustainable governance.

Epistolary Jurisdiction

The judiciary introduced epistolary jurisdiction to ensure access to justice for those marginalized communities. This mechanism means that courts will accept letters and telegrams as writ petitions, making justice a little easier.²⁶ For example, in *Municipal Council, Ratlam v. Vardhichand* (1980),²⁷ a letter from the slum residents begging for better living conditions was a PIL. The court had also linked public health to environmental rights when it found that the municipality had a legal duty to provide proper sanitation. It expanded the capacity of the judiciary to charter new, unconventional courses in environmental and public health matters.

Remedy of Continuous Mandamus

Judicial review enables courts to examine administrative decisions to ensure compliance with environmental laws. In cases involving industrial projects, courts intervene when proper environmental impact assessments are not conducted, holding authorities accountable for their actions.

Continuous mandamus, another judicial innovation, keeps cases open for ongoing monitoring. In the **Ganga Pollution Case**, the court has retained jurisdiction for decades, ensuring sustained implementation of its orders. This approach has also been used in cases of air pollution in Delhi, where the court directed the adoption of cleaner fuels and phased out polluting vehicles.

Through mechanisms like PIL, epistolary jurisdiction, judicial review, and continuous mandamus, the judiciary has strengthened environmental gover-

²⁵M.C. Mehta v. Union of India, 4 SCC (1987), available at: <https://lawtimesjournal.in/m-c-mehta-v-union-of-india-ganga-pollution-case/> (last visited Dec 24, 2024).

²⁶“What is Writ? Types Of Writ - Law Legum,” available at: <https://lawlegum.com/what-is-writ-types-of-writ/> (last visited November 16, 2024).

²⁷*Municipal Council, Ratlam v. Shri Vardhichand & Ors*, AIR (1980), available at: <https://indiankanoon.org/doc/440471/> (last visited Dec 24, 2024).



nance in India. Its interventions have ensured that environmental laws are enforced effectively, addressing complex ecological challenges while balancing development and sustainability. The judiciary's proactive role remains vital as environmental issues grow more pressing and multifaceted.

Doctrines of Environmental Law

India's judiciary has evolved with several legal doctrines to confront environmental challenges, coexisting ecological sustainability, and economic development. These doctrines have been crucial legal frameworks for environmental governance and have set rule principles that endure.

Polluter Pays Principle

This is important to ensure that those who are polluting bear the cost of the damage they cause and to determine those who decide to be reckless and reduce their cost to zero. In *Vellore Citizens' Welfare Forum v. Union of India* (1996)²⁸ the Supreme Court directed tanneries to pay for the ecological damage done by tanneries in Tamil Nadu.²⁹ Like in the *Indian Council for Enviro-Legal Action v. Union of India* (1996),³⁰ Polluting industries were ordered to remediate groundwater and soil contamination, while the restoration of ecological worth was stressed more than the payment.³¹

Precautionary Principle

It is a principle of precautionary care that even if we have scientific uncertainties, there could be prevention measures. *Vellore Citizens' Welfare Forum* and later *A.P. Pollution Control Board v. M.V. Nayudu* (1999)³² first articulated it. In doing so, in these cases, the Supreme Court transferred the burden of proof and placed it on industries that sought environmental clearances to ensure precaution is taken in decision-making processes.³³ This

²⁸*Vellore Citizens Welfare Forum v. Union of India & Ors*, AIR 2715 (1996), available at : <https://indiankanoon.org/doc/1934103/> (last visited Dec 24, 2024).

²⁹United Nations Department of Economic and Social Affairs, *supra* note 7.

³⁰*Indian Council for Enviro-Legal Action v. Union of India*, 3 SCC 212 (1996).

³¹Nithya Sree R M et al., "Environmental Protection Policies in India and Impact on Corporate Social Responsibility: A Study on Industry Analysis and Sustainability", 10 Int. J. Res. Appl. Sci. Eng. Technol. 904 (2022).

³²*A.P. Pollution Control Board II v. Prof. M.V. Nayudu (Retd.)*, AIR (2000), available at : <https://indiankanoon.org/doc/1543623/> (last visited Dec 24, 2024).

³³What is Writ? Types Of Writ - Law Legum, available at: <https://lawlegum.com/what-is-writ-types-of-writ/> (last visited Nov 16, 2024).



principle will protect us from the harm of permanent damage to the environment.

Public Trust Doctrine

According to this doctrine, certain natural resources, such as air, water, and forests, are public assets that the government holds in trust. In the second case, *M.C. Mehta v. Kamal Nath (Span Motel case)*,³⁴ the court ruled that spending parts of the Beas River for private use was against public trust. In *M.I. Builders v. Radhey Shyam Sahu (1999)*³⁵ the court has also affirmed that public resources cannot be exploited for private gain, ordering the demolition of a shopping complex that encroached on a public park in the name of Radhey Shyam Sahu.

Doctrine of Sustainable Development

This doctrine advocates for economic growth through the conservation of the environment. It is recognized in the Vellore Citizens' Welfare Forum, which says development cannot come at the cost of future generations. In the *Taj Trapezium case*, the Supreme Court applied this doctrine to protect the Taj Mahal by relocating polluting industries and mandating cleaner technologies, showcasing the balance between heritage preservation and industrial activity.

Doctrine of Absolute Liability

This doctrine was first introduced by the *Oleum Gas Leak Case (1986)*³⁶, and according to which industries engaged in activities of hazard, did the liability for damage, whether or not any precaution was taken. Unlike the previous Rule of Strict Liability, it leaves little or no room for defenses such as third-party action or natural disaster. It established a high standard of corporate accountability, still holding forth as a central pillar of industrial safety regulation. The Polluter Pays Principle, Precautionary Principle, Public Trust Doctrine, Doctrine of Sustainable Development, and Doctrine of Absolute Liability have shaped India's environmental jurisprudence. Instead, the judiciary has embedded these doctrines into judgments; it has served as an accountability

³⁴*M.C. Mehta v. Kamal Nath & others*, SCC 388 (1997), available at: <https://lawbhoomi.com/m-c-mehta-vs-kamal-nath-and-others/> (last visited Dec 24, 2024).

³⁵*M.I. Builders Pvt. Ltd v. Radhey Shyam Sahu And Others*, AIR (1999), available at : <https://indiankanoon.org/doc/1937304/> (last visited Dec 24, 2024).

³⁶*M.C. Mehta & Anr. Etc v. Union of India & Ors*, 1 SCR 312 (1986), available at: <https://indiankanoon.org/doc/1599374/> (last visited Dec 24, 2024).



instrument, preserved public resources, and contributed to sustainability. Although these principles are essential to current challenges to ecology, they continue to be relevant to robust development.³⁷

Case Laws on Environmental Jurisprudence

In this light, the Indian judiciary has played a vital role in defining environmental protection laws, having pronounced landmark judgments that fill the gap in legislative action or take recourse to executive neglect. It has set up the judiciary as a proactive guardian of the nation's natural resources and the ecological balance. Among the people who have played an important role in this movement is M.C. Mehta, whose exciting and untiring efforts have yielded highly significant rulings in environmental law.³⁸

M.C. Mehta's Contributions

M.C. Mehta, a public interest lawyer, has prominently contributed to the Indian development of environmental jurisprudence. Through PIL, he has brought industries and governments to the cleaners for environmental degradation, further creating legal environmental preservation precedents.

Ganga Pollution Case (1985)

Mehta has filed this PIL to tackle the severe pollution of the Ganges River. Health issues of the people and natural resources were taken seriously by the Supreme Court when it ordered the closure of polluting industries along the river and, since then, regulated the degree of industrial effluents.

Taj Trapezium Case (1997)³⁹

Mehta was concerned about industrial pollution harming the Taj Mahal and approached the court looking for protection of the monument. The Supreme Court mandated that polluting industries be relocated or forced to follow cleaner fuels such as CNG. By doing this, the current ruling saved India's

³⁷Environment Education, available at: <https://www.ecology.edu/environmental-education.html> (last visited November 16, 2024).

³⁸Nithya Sree R M et al., "Environmental Protection Policies in India and Impact on Corporate Social Responsibility: A Study on Industry Analysis and Sustainability," 10 International Journal for Research in Applied Science and Engineering Technology 904–10 (2022).

³⁹M.C. Mehta vs. UOI, 2 SCC 353 (1997), available at: <https://lawlex.org/lex-bulletin/case-summary-m-c-mehta-vs-uoi-taj-trapezium-case/27471> (last visited Dec 24, 2024).



cultural heritage and drew attention to India's judiciary's commitment to sustainable development.⁴⁰

Oleum Gas Leak Case (1986)⁴¹

After a gas leak from a Delhi-based factory, the court followed with the Doctrine of Absolute Liability, where hazardous industries are held entirely liable for any damage caused. According to this landmark judgment, corporate responsibility must be strengthened, and public safety standards must be enhanced.

Landmark Environmental Judgments

Doon Valley Case (Rural Litigation and Entitlement Kendra v. State of UP):⁴²

Taking priority over short-term economic benefits, the Supreme Court put an order of halt to limestone mining in the ecologically sensitive Doon Valley for long-term ecological sustainability.⁴³

Kamal Nath Case

The court relied on the Public Trust Doctrine to invalidate the diversion of the Beas River for private benefit, establishing that natural resources are in trust for public use and may not be used for private advantage.

Subhash Kumar v. State of Bihar⁴⁴

This judgment held that the right to a clean environment ought to be derived as a part of the fundamental right in Article 21 of the Constitution, linking environmental health with human rights and public well-being.

Latest Legal Ruling

Indian Council for Enviro-Legal Action v. Union of India (2021)⁴⁵

⁴⁰INDIA'S JOURNEY TOWARDS SUSTAINABLE DEVELOPMENT, available at: <https://lawcolloquy.com/publications/blog/india-s-journey-towards-sustainable-development/220> (last visited November 16, 2024).

⁴¹M.C. Mehta & Anr. Etc v. Union Of India, 1 SCR 312 (1986), available at: <https://indiankanoon.org/doc/1599374/> (last visited Dec 24, 2024).

⁴²Rural Litigation And Entitlement v. State Of U.P., supra note 23.

⁴³*Ibid.*

⁴⁴Subhash Kumar v. State of Bihar, supra note 14.

⁴⁵Indian Council for Enviro-Legal Action v. Union of India, supra note 31.



The Supreme Court emphasized the need for strict compliance with environmental regulations, particularly concerning hazardous waste management. The court ruled that industries must adhere to the standards the Ministry of Environment, Forest and Climate Change (MoEFCC) set to prevent environmental degradation.⁴⁶

Sanjay Kumar v. State of Uttar Pradesh (2021)⁴⁷

This case dealt with illegal sand mining activities along the banks of the Ganges. The court banned illegal mining and ordered the state government to take immediate action against violators, reinforcing the principle of sustainable resource management.

M.C. Mehta v. Union of India (2022)⁴⁸

In this ongoing case related to air pollution in Delhi, the Supreme Court directed the implementation of the Graded Response Action Plan (GRAP) to combat severe air quality issues during the winter months. The court mandated specific measures to control vehicular emissions and industrial pollution.

Kumaraswamy v. State of Karnataka (2023)⁴⁹

The Karnataka High Court ruled against a proposed construction project near a protected forest area, citing violations of environmental clearance norms and the need to protect biodiversity. This decision reinforced the importance of environmental impact assessments before project approvals.

Narmada Bachao Andolan v. Union of India (2022)⁵⁰

The Supreme Court upheld the rights of local communities affected by large dam projects, emphasizing the need for rehabilitation and resettlement plans that respect environmental and social justice principles.

⁴⁶Dr. Abhishek Lunayach & Vijay Khichar, “Integrating Green Education for Sustainable Development: A Study of India’s Educational Approach”, 6 Int. J. Educ. Mod. Manag. Appl. Sci. Soc. Sci. IJEMMASS 7004 (2024).

⁴⁷Sanjay Kumar Rai v. The State Of Uttar Pradesh, AIR (2021), available at: <https://indiankanoon.org/doc/171592187/> (last visited Dec 24, 2024).

⁴⁸M C Mehta v. Union of India, (2022), available at: <https://indiankanoon.org/doc/8826657/> (last visited Dec 24, 2024).

⁴⁹Sri. Kumaraswamy v. State Of Karnataka, (2023), available at: <https://indiankanoon.org/doc/140175983/> (last visited Dec 25, 2024).

⁵⁰Narmada Bachao Andolan v. Union of India, 328 SCR (2022), available at: <https://indiankanoon.org/doc/197795288/> (last visited Dec 25, 2024).



India's landmark judgments have set a strong foundation for the governance of its environment, concurrently allowing ecological preservation and development needs. M.C. Mehta cases (and others) have extended the reach of the constitutional rights to environmental protection, helped build on critical doctrines, and reaffirmed corporate and governmental responsibility rules. These rulings guarantee public health, heritage, and a sustainable future for our children.

Judicial Activism Gaps

The Indian judiciary has certainly advanced environmental protection, but it has not been free of limitations.⁵¹ The high point of judicial activism exacerbates inconsistencies in judgments, dilutes environmental safeguards, and puts excessive reliance on courts, the consequences of which should be addressed by a balanced approach combining all three branches of the government.⁵²

Inconsistencies in Environmental Judgments

Environmental judicial rulings have sometimes not been consistent, especially when courts tip the scale toward economic development in favor of ecological preservation. In **Narmada Bachao Andolan v. Union of India (2000)**,⁵³ the Supreme Court permitted the construction of the Sardar Sarovar Dam despite substantial disruptions and environmental damage caused by large-scale displacement. This was a break from the court's previous focus on ecological sustainability and the rights of vulnerable communities.

Similarly, in the **Sterlite Copper Plant case**,⁵⁴ the Supreme Court allowed the reopening of a polluting industrial plant in Tamil Nadu in the Sterlite Copper Plant case against public protests and evidence of environmental violations. These judgments also partly illustrated where the judiciary felt they had to balance development with the need for environmental protection, contributing to uncertainty over how environmental principles are applied.

⁵¹Environmental Law, available at: <https://lmslaw.blogspot.com/p/environmental-law.html> (last visited Dec 24, 2024).

⁵²Ajit Menon, *Situating Law: Adivasi Rights and the Political Economy of Environment and Development in India*, in *Law, land use and the environment: Afro-Indian dialogues* (2008), available at: <https://books.openedition.org/ifp/3926> (last visited Dec 24, 2024).

⁵³*Narmada Bachao Andolan v. Union of India*, AIR 3751 (2000), available at: <https://indiankanoon.org/doc/1938608/> (last visited Dec 25, 2024).

⁵⁴*Tamil Nadu Pollution Control Board v. Sterlite Industries (I) Ltd. & Ors.*, SCR (2013), available at: https://main.sci.gov.in/supremecourt/2013/17302/17302_2013_Judge-ment_18-Feb-2019.pdf.



Dilution of Environmental Safeguards

Over the past few years, critical environmental regulations have been weakened. In 2020, EIA norms were amended allowing certain projects to dodge public consultation processes and hinder accountability. For example, the exemptions for Oil and Natural Gas Corporation (ONGC) for exploratory drilling was tantamount to a greenlight to rampant operations in ecologically sensitive zones.

Yet the judiciary has responded to these regulatory rollbacks in a restrained fashion, leaving environmental safeguards un-legislatively preserved. Further, the National Green Tribunal (NGT), established to centralize environmental litigation, has not always been able to enforce orders because of a dearth of executive support. It has weakened its authority, and judicial oversight has lost its effectiveness.

Over-Reliance on Judiciary

A second problem centers on how frequently courts are demanded to solve environmental problems. Judicial activism has been at the heart of governance filling but done so in a reactive manner in environmental issues. After environmental harm occurs, courts often intervene, by ordering remediation or compensation. While a reactive response such as this is well taken, it is not a substitution for proactive executive and legislative regulation. In addition, the judiciary is often ill equipped to deal with the complexities of even the most routine of environmental cases, be they climate change related or of biodiversity. However, while expert committees such as the National Environmental Engineering Research Institute (NEERI) offer advice on such things, it is more the duty of regulatory bodies such as the Ministry of Environment, Forests and Climate Change (MoEFCC). Indian courts have a further backlog of cases, which adds to the problem of implementation of critical environmental orders. It should be undermining the timely resolution of pressing ecological issues. India's environmental jurisprudence has been shaped through judicial activism, however, the limitation of judicial activism underlines the need for a democratic, participatory governance agenda. However, sustainable environmental governance requires consistent rulings, stronger safeguards, more legislative and executive responsibility. If all branches of government go about working together, we can have proactive measures that prevent harm and promote ecological sustainability, taking the burden off the judiciary, which works so hard to protect the environment.



Current trends

In recent years, India's environmental governance has reached evolution to a new level, with judicial interventions, specialized forums (National Green Tribunal), and alignment with international commitments (Paris Agreement). But emerging challenges of climate change, urbanization and industrialization call for other forms of adaptation and collaboration at levels beyond governance structures.

National Green Tribunal (NGT)

Set up in line with 2010 National Green Tribunal Act, the NGT has lately grown to be an important body to persuade environmental nuisance using an efficient system of disputes. Its mandate includes handling cases related to pollution, forest conservation, water management, and biodiversity under key environmental laws⁵⁵ like the **Environment Protection Act (1986)**, **Air Act (1981)**, and **Water Act (1974)**.

The NGT has delivered landmark judgments that go beyond immediate redressal to systemic reforms:

- **Yamuna River Pollution Case (2015):**⁵⁶ imposed strict penalties on industries discharging untreated effluents and ordered municipalities to control sewage pollution and, for the most part, took a proactive attitude towards chronic environmental problems.
- **Sterlite Copper Plant Case (2013):**⁵⁷ It ordered closure of that polluting industrial plant in Tamil Nadu saying public health and environmental safety remain top priorities.
- **Volkswagen Emission Case (2018):**⁵⁸ It fined the automaker for using devices to cheat emissions tests — and set a precedent for holding multinational corporations accountable.

In many ways, the NGT's work have ensured it to become a vital pillar of environmental governance on account of its focus on accountability and pre-emptive action.

⁵⁵Environmental Law, available at: <https://lmslaw.blogspot.com/p/environmental-law.html> (last visited November 16, 2024).

⁵⁶Tata Power Delhi Distribution Ltd. NDPL House v. Manoj Misra and Ors, SCR (2015).

⁵⁷Tamil Nadu Pollution Control Board v. Sterlite Industries (I) Ltd. & Ors., supra note 55.

⁵⁸German History in Documents and Images.



Climate Change and Indian Courts

As climate change poses increasing risks, Indian courts have become active in promoting sustainable practices and mitigating climate impacts:

- **Renewable Energy Mandates:** Renewable Purchase Obligations (RPOs), among others, courts have held that moves towards cleaner energy must be undertaken.
- **Forest Conservation:** In **T.N. Godavarman Thirumulpad v. Union of India**,⁵⁹ the Supreme Court protected huge tracts of forest land in Union of India, carbon sinks that are critical to mitigate climate change.
- **Scrutiny of Environmental Impact Assessments (EIA):** In cases where EIA clearances have been formalized improperly for projects with high carbon emissions courts have intervened to enforce accountability and due diligence.

These actions reflect the judiciary's growing role in addressing climate risks through legal and policy frameworks.

International Commitments and Domestic Enforcement

India has pledged to increase its renewable energy capacity, reduce the intensity of emissions under its international commitments under treaties like the Paris Agreement (2015), afforestation, etc. These commitments have been domesticated through the key role the judiciary has played in incorporating their content into domestic law by referring to the Precautionary Principle and the Doctrine of Sustainable Development. The Supreme Court, for example, in the Taj Trapezium Case has used global environmental norms to uphold pollution control measures.

India's environmental jurisprudence reflects significant progress through the NGT's interventions, judicial focus on climate-related issues, and alignment with international frameworks. However, challenges like deforestation, urban pollution, and climate change demand a more coordinated effort involving the judiciary, legislature, and executive. A collaborative approach is essential to ensure sustainable governance and address the complexities of India's environmental future.

⁵⁹T.N. Godavarman Thirumulpad v. Union Of India | Supreme Court Of India | Judgment | Law | CaseMine, available at: <https://www.casemine.com/judgement/in/629a6159b50db9bb596d9cf4> (last visited November 16, 2024).



Recommendations and Future Pathways

Today, India faces growing environmental challenges like climate change, pollution, deforestation, and natural resource depletion caused by man is worse. Although the judiciary has done commendably well protecting the environment, a sustainable solution demands a multi-pronged strategy that includes enforcement of the laws, the active participation of the executive and legislature, maximum public awareness, and judicial reforms. Strict enforcement, transparency in decision-making, mass awareness campaigns, and specialized judicial machinery are imperative for long-term ecological sustainability.

Strengthening Environmental Legislation

The gap between law enactment and enforcement is one of India's most pressing environmental governance issues. While India has very well-developed legislation to protect and conserve the environment, with many landmark legislations like the Environment (Protection) Act of 1986, Water Act of 1974, and Air Act of 1981, there is a lack of adequate and effective enforcement and monitoring of these laws. There is a need to implement these laws effectively and ensure the perpetrators are held accountable with harsher penalties and more consistent oversight.

Stricter Enforcement and Monitoring

To address the gaps in enforcement, regulatory authorities such as the **Central Pollution Control Board (CPCB)** and the **State Pollution Control Boards (SPCBs)**⁶⁰ must be provided sufficient resources, manpower, and technological devices to monitor compliance effectively to fill the enforcement gaps. These bodies need real-time data collection and monitoring systems in areas prone to industrial pollution, deforestation, or illegal mining. Additionally, environmental penalties for violating the environment should be significant enough to be deterrents, and inspections for industries that emit more should become mandatory.

Improving Public Consultation and Restoring Transparency

Another area for reform is in the (EIA) process itself. In recent years, EIA norms have become increasingly diluted with regard to transparency and public participation and weakened environmental governance. The government should

⁶⁰Environmental Protection: Comprehensive Analysis in India (2024) – Global Regulatory Insights, available at: <https://globalregulatoryinsights.com/insight/environmental-protection-comprehensive-analysis-in-india-2024/> (last visited Nov 16, 2024).



reinstitute and bolster the EIA process by discussing it with all possible stakeholders, including local communities, environmental experts, and civil society before environmental clearances are given.

Restoring transparency involves making environmental data publicly accessible, from pollution levels to the outcomes of public consultations. **Online portals** should be used to publish all environmental clearance processes, allowing the public to raise objections or suggestions. This would also ensure greater accountability from both industries and government agencies in their environmental decision-making processes.

Role of the Executive and Legislature

The judiciary has been active in environmental concerns, but the executive and the legislature must play an important role in guaranteeing the holistic coverage of environmental problems. But they're crucial to developing a well-thought-out, long-term approach that extends beyond judicial interventions.

Complementing Judicial Activism with Legislative and Executive Action

The executive and legislature should be responsible for proactive environmental governance by passing comprehensive policies that consider the evolution of environmental challenges in the 21st century, such as climate change and sustainable urbanization. It entails passing laws focusing on the drive for circular economy, renewable energy, and climate-resilient infrastructure.

Rather, the legislature can complement judicial activism by closing legal gaps, updating outdated laws, or ensuring environmental standards align with what other countries are doing, like the Paris Agreement. A new challenge should be brought about by comprehensive laws on waste management, water conservation, and carbon emissions.

In order to implement environmental governance effectively, the executive should give the top priority to the generation and execution of the policies through his departments like the Ministry of Environment, forests and Climate Change (MoEFCC). Sustaining local and national environmental challenges requires coordination between central and state governments. Public private partnerships can then be explored to fund or support green technology and conservation initiatives such as renewable Energy and Waste management.



Need for Mass Awareness and Education

The Role of public awareness and education is one of the most important yet often overlooked aspects of environmental governance. Knowledge about the environment is power, knowledge is power for the creation of a society where citizens know and are active in environmental protection. Mass education opens the way for changing public attitudes and behaviors towards more sustainable living practices.

Importance of Environmental Awareness Campaigns

Environmental education should be incorporated in school curricula at every level from an early age to make people bring about expected changes. On the other hand, it is equally important to get the larger public involved in campaigns stressing ecological value, conservation, and basic sustainable practices. The Swachh Bharat Abhiyan (Clean India Movement) can be carried further for broader purposes, like water conservation, plastic minimization, or air pollution.⁶¹

The use of Nukkad Nataks (street plays), which have been historically realized with success in raising awareness on social issues, could be one particularly good approach. The public can be educated about pressing environmental concerns in a culturally resonant and accessible form by using these performances. Rural areas can also spread environmental awareness through local languages and traditional forms of communication, such as folk songs and puppet shows.

Also, media campaigns on TV, radio, and social media will reach a greater audience and make people aware of their rights, responsibilities, and environmental protection. Then, people can engage through workshops, public debates, and community programs to discuss how they can participate in the sustainability efforts in their lives every day.

Establishing Fast-Track Environmental Courts

Environmental cases are often tied to complex technical aspects needing expertise and a rapid solution. Environmental disputes can languish for years in regular courts, causing serious environmental damage before their backlog

⁶¹Right to Water Gets Major Boost in a Historic Judgement by the Mumbai High Court – The Council of Canadians, available at: <https://canadians.org/analysis/right-water-gets-major-boost-historic-judgement-mumbai-high-court/> (last visited November 16, 2024).



clears. This needs to be addressed by fast-track environmental courts instituted nationwide.

Specialized Courts for Quicker Resolution

There would be these courts, specially created for hearing all kinds of environmental issues like pollution by industry, deforestation, and water conservation, as well as disputes that might arise from climate change. While NGT has undoubtedly made strides in addressing environmental cases, the tribunal's capacity is finite, and its caseload is increasing. Decentralizing environmental justice⁶² would also occur by creating additional regional or district fast-track courts at the regional or district level, thereby resolving local environmental disputes expediently and efficiently.

Such courts should be supported by the personnel of judges, lawyers, and technical people with a background in environmental science and law. The fast-track courts would also ease the load on the NGT, especially by assigning the dense cases to the NGT to work on the high-profile cases. These courts would mean the environmental cases are easily dealt with, which means that any environmental harm is dealt with before it gains unmanageable momentum.

As explained above, India is at a crossroads in its environmental governance. If there is any system that has come handy in handling immediate incidences that are in a way endangering the environment in one way or the other it is the judiciary and probably this is the reason why, over the years, the judiciary has been under pressure of dealing with such incidences; Nevertheless the overall approach requires sustainable environmental management. Improving legal frameworks, raising people's awareness, increasing the efficiency of law application, and establishing specialized environmental trial courts are the important measures towards this vision. The executive and legislature should help the judiciary ensure that environmental policies are reactive and preventive. Promoting everyone's consequent attitude towards society and natural resources is an important factor of public awareness and education. It is only possible if all sectors and all people of India join hands to meet the rather complicated and tangled environmental issues at the dawn of the twenty-first century.

⁶²Kirit Patel, Alan P. Diduck and Aruna Kumar Malik, "Environmental justice in India: Context, issues and framework" *Advancing Environmental Justice for Marginalized Communities in India: Progress, Challenges and Opportunities* 3–20 (2021).



Conclusion

In recent decades, the Indian judiciary has become an active actor in environmental management by developing principles, case determination, and PIL culture. Such personalities as M.C. Mehta may be fitted to demonstrate the necessity of legal activity in the modern world where problems like pollution control or the saving of significant natural and cultural-historical sites arise.

However, several limitations and missed opportunities are identified as follows. Undue complacency in administrative action and infirmities in conclusions, correlative disparities in judicial rulings, processes' weakening of environmental protection standards, and dependence on the judiciary to redress environmental Wrongs suggest a systematic requirement for such change. These challenges highlight the need to promote an efficient, participative, and integrated approach to environmental governance with active participation of judiciary, executive, and legislative wings. However, these reforms need a consistent blueprint to generate sound environmental laws, implement such legislation, and embrace best practices and practices for sustainable development.

Negatively, in the recent past, there have been lacunae, including the current structure of the NGT, and increased address to climate change issues, which is positive. However, the kinds of problems people face now – climate change, urbanization, pollution, etc, cannot wait for such an approach. Improving the legal framework, improving the ways and means of participation of the masses, raising public awareness, and setting up specialized environmental courts in order to address environment-related violations as expeditiously as possible are the needs of the hour.

Being one of the world's most popular and fast-developing countries in the contemporary world, India witnesses how the problems of development and protection of the environment interconnect and impose collective concerns and their solutions to judiciary, executive, legislative power, and society. This means that everybody should ensure they are protecting the environment and, at the same time, they are improving their revenues. In this regard, the future of India's consecutive environmental jurisprudence will be built up only if this cooperation is based on the protection and conservation of natural resources for the existence of the succeeding generations.

Thus, the progress achieved within the field of environmental conservation is convincing enough to state that more is to come. Still, the way to the goal in many aspects is steeped in difficulties that can and should be surmounted



only through collective efforts, determination, and reliance on innovative concepts and approaches. This paper has argued and shown that India can lead a more sustainable future by creating an environmental accountability culture that will respect the people's rights and the earth as a whole. Ultimately, preserving the environment is not just a legal obligation but a moral imperative for a society that seeks to thrive in harmony with nature.

TOWARDS SUSTAINABLE SOLUTIONS: LEGAL CHALLENGES AND RESPONSES TO MICROPLASTIC POLLUTION



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Abstract

Micro plastic is defined as plastic particles smaller than 5 millimeters that has emerged as a critical threat to the environmental sustainability and public health. Their ubiquitous presence in ecosystems, water bodies, and even the human systems has given rise to global concern. This paper explores the multifaceted challenges posed by microplastics and evaluates the existing regulatory frameworks at both international and national levels. The paper examines India's substantial contribution to the global plastic waste and the urgent need for stringent policies. The International efforts, including resolutions passed by the United Nations Environment Assembly (UNEA) and the European Union's Nature Restoration Law, are analyzed to showcase global commitments toward mitigating plastic pollution. Domestically, India's Plastic Waste Management Rules and their amendments from 2016 to 2024 are scrutinized, with a particular focus on extended producer responsibility (EPR). The role of Sustainable Development Goals (SDGs) in guiding legal and regulatory actions is also discussed.

Keywords: *Microplastics, environmental regulations, public health, plastic pollution, National Green Tribunal (NGT), Sustainable Development Goals (SDGs), extended producer responsibility (EPR), Plastic Waste Management Rules, United Nations Environment Assembly (UNEA).*

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Introduction

“It is only the force of citizenry, it is only the force of the population, it is only the wisdom of the entire nation, which will determine what shall be the profile when it is we say no to plastics, we must say emphatically, ‘no’ to plastic” - Justice UU Lalit¹

Micro plastics – the small plastic particles under 5 millimeters in size – have become an urgent environmental and public health threat. The omnipresence of their material in various ecosystems, oceans, and even human bodies has garnered worldwide attention for the necessity of stricter regulations and creative solutions. In India, the subject has been pushed to center-stage by the National Green Tribunal (NGT) which is taking an active interest in addressing the environmental and health hazards of micro plastics. The NGT had earlier, in February 2024, pointed to the alarming health hazards of micro plastics, noting their capacity to enter human blood cells.² This led to a directive for strict compliance with environmental regulations and a study to determine the need for policy changes. In July 2024, as soon as there were reports of micro plastic contamination in Ashtamudi Lake, the tribunal directed the Kerala State Pollution Control Board and the Department of Environment to take action.³ In March 2023, the NGT had directed multiple ministries of the government to assess a report by the Central Pollution Control Board (CPCB) on micro plastics and make any policy changes deemed necessary.⁴

¹District Legal Services Authority, Andhra Pradesh State Legal Services Authority & NALSA, Legal Services Programme organised at AU Convention Centre, Vishakhapatnam, June 3, 2022, available at: <https://barnbench-nlul.refread.com/news/emphatically-say-no-to-plastic-supreme-court-judge-justice-uu-lalit> (last visited Nov. 15, 2024).

²National Green Tribunal Principal Bench, New Delhi, News Item titled “All Indian salt Sugar brands contain microplastics reveals study” appearing in the Business Standard dated 13.08.2024, Original Application No.1094/2024, Coram: Hon’ble Justice Prakash Shrivastava (Chairperson) & Hon’ble Dr. A. Senthil Vel (Expert Member) (2024).

³National Green Tribunal Principal Bench, New Delhi, NGT asks Department of Environment, Pollution Control Board to report on microplastic contamination in Ashtamudi Lake, The Hindu, May 24, 2024, available at: <https://www.thehindu.com/> (last visited Nov. 15, 2024).

⁴Tribunal on its own motion Suo Motu based on the news item titled “News reveals extent of microplastic pollution in Ashtamudi Lake” appearing in The Hindu dated 24.05.2024, Original Application No. 640/2024, Before the Hon’ble National Green Tribunal, Principal Bench, New Delhi.



In August 2024, the NGT issued another important intervention directing the Punjab Pollution Control Board to be added to discussions on solid waste management at the vegetable market in Ludhiana.⁵ This showed how micro plastic pollution is linked with urban waste management systems. These events highlight the critical necessity of widespread action to address micro plastic pollution. India's role in the world's plastic waste problem is huge, accounting for 9.3 million tons of plastic waste generated a year almost 20% of the global total.⁶ This stark reality demands that we devote a focused legal and regulatory solution to its mitigation.

This paper reviews international efforts, including resolutions passed by the UN Environment Assembly (UNEA). From UNEA-1 Resolution 1/6 addressing marine litter to UNEA-4 Resolution 4/6 calling for globally comprehensive networks, these efforts demonstrate the international community's recognition of the urgent action needed to combat plastic pollution. The E.U. has also been at the forefront, with the Nature Restoration Law (NRL) and the European Strategy for Plastics in a Circular Economy serving as pillars to help combat micro plastic pollution and become more sustainable.

In India, domestic legislation has been developed to address plastic pollution. In 2016, the Plastic Waste Management Rules proposed a big step in that direction — along with the concept of extended producer responsibility (EPR), making producers, brand owners and generators of plastic waste accountable for the entire lifecycle of the plastic they introduce into the environment (including its post-consumer end). This regulation has been gradually improved, through subsequent amendments in (up till) 2024, which included stricter rules for recycling, forbidding the use of single-use plastics, and extending authorship of hazardous waste regulations to non-ferrous materials such as aluminum and copper. The principle of Extended Producer Responsibility (or EPR) has been at the center of India's efforts to have producers liable for collection and recycling of waste generated from products. The focus of this approach is the reduction of environmental footprints while embedding sustainability in industrial ways. Furthermore, FSSAI has acted swiftly to address the issue by taking steps to ensure that the presence of micro plastics does not compromise food safety and applying a multi-sectoral approach to deal with this.

⁵National Green Tribunal Principal Bench, New Delhi, Kapil Dev v. State of Punjab & Ors., Original Application No. 199/2023, M.A. No. 63/2024, available at: <https://greentribunal.gov.in/> (last visited Nov. 15, 2024).

⁶Down to Earth, With 20% of world's share, India is biggest generator of plastic waste (2024), available at: <https://www.downtoearth.org.in/> (last visited Nov. 15, 2024).



In this paper, we examine frameworks, international initiatives and domestic regulations to provide a holistic view of micro plastics. It considers landmark cases such as the *Tamil Nadu and Puducherry Paper Cup Manufacturers Association vs. the State of Tamil Nadu*⁷ to relate to the judicial interventions on plastic pollution. The focus on the interaction between law mechanisms and public health aims at the cultural action of generating knowledge capable of providing an immediate application to the challenges posed by the micro plastic crisis.

International efforts to deal with Micro plastic

2.1. Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) were introduced at the United Nations in September 2015 as a blueprint for dealing with the most important global challenges of our time. These goals define a unified vision for a sustainable and equitable future. The SDGs are a global agenda to eradicate poverty, protect the planet, and ensure prosperity for all. With 17 ambitious goals and 169 measurable targets, this agenda details tangible measures to reach these aspirations by 2030.

These targets are especially important for micro plastics. Micro plastics are a global environmental and health threat, contaminating our water systems, food chains and even the air we breathe. These objectives can curb the production and release of micro plastics through sustainable consumption, destiny, and prevention in aquatic and terrestrial ecosystems. Aligning our efforts towards achieving the SDGs will allow us to mitigate the negative impact of micro plastics and ensure our future generations grow up in a healthier environment.

2.1.1. SDG 6- Clean Water and Sanitation

This may have been first eliminated but now it is emphasizing that it should be assured to everyone, since to get clean and safe water as well as a sustainable management of water and sanitation is vital for the wellbeing of our planet. The emerging problem of micro plastics is also a major threat to water systems, arising from their introduction to aquatic environments via wastewater effluent and agricultural practises. Micro plastics — generated by synthetic clothing fibers, personal care products and a host of other goods

⁷Tamil Nadu and Puducherry Paper Cup Manufacturers Association v. State of Tamil Nadu, Civil Appeal No. 8536 of 2022, 2023 LiveLaw (SC) 923.



— remain in the effluent stream even after advanced wastewater treatment processes, and represent a complex data management challenge for water management.

Important targets of SDG 6 include:

1. Guaranteeing universal access to clean, safe, and affordable drinking water.⁸
2. Enhancing water quality by curbing pollution and advancing treatment methods.⁹
3. Promoting water efficiency across all sectors and safeguarding sustainable freshwater supplies.¹⁰
4. Adopting integrated approaches to water resource management to ensure sustainable use.
5. Restoring and protecting water ecosystems, such as rivers, lakes, wetlands, forests, and aquifers, for ecological balance.¹¹

2.1.2. SDG 11- Sustainable Cities and Communities

Urbanization must not take place at the expense of human safety and environmental thriving. This goal aims to make cities safe, resilient, and sustainable through the reduction of the impacts of disasters and urban pollution.

Important targets include:

1. By 2030, significantly lowering the number of deaths and economic losses caused by disasters, particularly water-related crises, with special attention to protecting vulnerable communities.¹²

⁸United Nations, Target 6.1: Achieve universal and equitable access to safe and affordable drinking water for all, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024)..

⁹United Nations, Target 6.3: Improve water quality by reducing pollution, eliminating dumping, and minimizing release of hazardous chemicals and materials, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024)..

¹⁰United Nations, Target 6.4: Substantially increase water-use efficiency across all sectors, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹¹United Nations, Target 6.5: Implement integrated water resources management at all levels, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹²United Nations, Target 11.5: Reduce the adverse per capita environmental impact of cities, including paying special attention to air quality and municipal and other waste management, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).



2. Minimizing cities' environmental footprints by improving air quality and establishing effective waste management systems.¹³

2.1.3. SDG 12- Responsible Consumption and Production

This goal requires both reducing harm to human health and the environment through smarter resource use and waste management. Sustainable production systems and responsible consumption habits are the focus.

Important targets include:

1. Managing chemicals and waste in an environmentally sound manner throughout their life cycle to reduce adverse effects on health and ecosystems.¹⁴
2. Encouraging waste reduction through prevention strategies, recycling programs, and reusing resources.¹⁵
3. Reforming fossil fuel subsidies to eliminate market inefficiencies that lead to excessive consumption, while addressing the unique needs of developing nations and ensuring that vulnerable populations are not adversely affected.¹⁶

2.1.4. SDG 14- Life below Water

The health of oceans is critical for the planet's well-being. This goal aims to protect the marine environments from pollution and unsustainable practices to support biodiversity and coastal communities.

¹³United Nations, Target 11.6: Significantly reduce the number of deaths and the number of people affected by disasters Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹⁴United Nations, Target 12.4: Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹⁵United Nations, Target 12.5: Substantially reduce waste generation through prevention, reduction, recycling, and reuse, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹⁶United Nations, Target 12.c: Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).



Important targets include:

1. By 2025, significantly reducing marine pollution, including debris and contaminants originating from land-based activities.¹⁷
2. Managing and conserving marine ecosystems to prevent damage, enhance resilience, and restore their productivity.¹⁸
3. Strengthening global collaboration by advancing scientific research, enhancing technological expertise, and sharing marine knowledge to aid developing nations, particularly small states and the least developed countries.¹⁹
4. Mahindra University, HyderabadThe UN Environment Assembly (UNEA) is the world's highest decision making body on environmental issues. It was set up in June 2014 meets every two years in the United Nations Environment Programme (UNEP) with headquarters in Nairobi, Kenya.²⁰ UNEA unites governments, civil society and the private sector to collaboratively tackle the world's most pressing environmental challenges. A major function of this body is to define the global environmental agenda, create sustainable development and environmental policies globally.²¹

The UNEA sessions address wide-ranging issues, such as climate change, biodiversity, pollution, and sustainable consumption and production. Resolutions and decisions of the Assembly set forth the guidelines for the environmental work of the United Nations and the specialized agencies. Such resolutions typically translate into policies and strategies, and actions that are recommended for Member States to implement.

¹⁷United Nations, Target 14.1: Prevent and significantly reduce marine pollution of all kinds, Sustainable Development Goals , available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹⁸United Nations, Target 14.2: Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

¹⁹United Nations, Target 14.a: Increase scientific knowledge, develop research capacity and transfer marine technology, Sustainable Development Goals, available at: <https://sdgs.un.org> (last visited Nov. 15, 2024).

²⁰United Nations Environment Programme, About the United Nations Environment Assembly, available at: <https://www.unep.org/environmentassembly/about-united-nations-environment-assembly> (last visited Nov. 15, 2024).

²¹*ibid*



2.2.1. UNEA-1, Resolution 1/6

Resolution 1/6 regarding Marine Plastic Debris and Microplastics, adopted at the first United Nations Environment Assembly (UNEA), in June (2014), underscores the urgency as well as the complexity of marine plastic pollution.²² The resolution calls on the Executive Director, in cooperation with relevant institutions and stakeholders, to carry out a thorough study of main sources of marine plastic and micro plastics, including prevention, best practice and measures for action needed urgently.²³ The study is also designed to highlight analysis gaps, particularly for and in relation to diversity environments and human health, and other priorities as deemed by the GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection) assessment.

2.2.2. UNEA-2, Resolution 2/11

After the adoption of the Sustainable Development Goals (SDGs) in 2015, there came Resolution 2/11, which was more comprehensive in nature than its predecessor, at UNEA-2 and focused on marine plastic litter and microplastics. Adopted on 27 May 2016,²⁴ reaffirming the concerns in previous resolutions and recognizing the role of relevant UN agencies, such as the International Maritime Organization (IMO). The resolution aims to prevent and significantly reduce sea-based litter dumping, enhance provisions in existing measures to ensure that adequate port reception facilities are in place, facilitate the development of innovative new approaches to addressing marine litter, and calls for an assessment of the effectiveness of international, regional and sub regional governance approaches and regulatory frameworks in addressing marine plastic litter and microplastics.²⁵

2.2.3. UNEA-3, Resolution 3/7

UNEA-3 adopted Resolution 3/7 on marine plastic debris and microplastics in January 2018. It establishes an Ad Hoc Open-ended Expert Group on Marine

²²United Nations Environment Assembly, Second session: International environmental policy and governance issues: Marine plastic debris and microplastics (UNEP/EA.2/5) (23–27 May 2016), available at: <https://www.unep.org/> (last visited Nov. 15, 2024).

²³*ibid*

²⁴United Nations Environment Assembly, Third session: Nairobi (UNEP/EA.3/Res.7) (4–6 December 2017) available at : <https://apps1.unep.org/resolutions/uploads/k1800210.english.pdf> (last visited Nov. 15, 2024).

²⁵*ibid*



Litter and Microplastics and requests the Executive Director to enhance UNEP's ability to address marine litter and microplastics.²⁶ Strengthening contributions to the Global Partnerships on Marine Litter, prioritizing activities according to the best available science, and supporting capacity-building in the formulation of regional and national action plans. The resolution also highlights the need to fill data gaps and improve availability of data on sources and extents of marine litter.

2.2.4. UNEA-4, Resolution 4/6

Resolution 4/6, adopted at UNEA-4 in March 2019, repeats earlier issues and resolutions and notes important legal and policy work undertaken at other UN bodies.²⁷ The resolution urges the identification of possibilities for addressing marine litter in a manner consistent with existing international agreements, specifically mentioning an action plan from the MEPC to address marine plastic litter from ships. This includes calls to enhance scientific and technological knowledge through activities including convening relevant science advisory initiatives, collating data on litter sources and hazards, and recommending indicators that can help harmonize monitoring and assessment methodology.

An International Negotiating Committee (INC) was established in March 2022 during the fifth session of the United Nations Environment Assembly (UNEA). Taking place in Paris, the summit's main focus is creating a legally binding treaty address plastic pollution, especially in oceans. In Jan 2022, POPRC recommended the addition of six more chemicals to the Stockholm Convention, which will increase the ambit of the Convention. Medium-chain chlorinated paraffins, metallic salts, long-chain perfluorocarboxylic acids (and related compounds), UV-328, etc.

The INC negotiations, driven by UNEA-5.2's resolution titled "Ending Plastic Pollution," have revealed significant findings regarding microplastics in successive sessions:

1. **INC-1 (Uruguay, 2022):** The first session underlined the pressing need for global collaborations to address microplastic pollution in

²⁶United Nations Environment Assembly of the United Nations Environment Programme, Third session: Nairobi (UNEP/EA.3/Res.7), Dec. 4–6, 2017, available at: <https://www.unep.org/> (last visited Nov. 15, 2024).

²⁷United Nations Environment Programme, UN Environment Assembly 4 Resolutions, available at : <https://www.unep.org/resources/resolutions-treaties-and-decisions/UN-Environment-Assembly-4> (last visited Nov. 15, 2024).



marine systems. It exposed how microplastics have infiltrated aquatic food chains, deriving from synthetic fibers and broken-down plastics, threatening biodiversity and human health.

2. **INC-2 (Paris, 2023):** Discussions at this session revolved around possible regulatory frameworks, such as restrictions on microplastic emissions from primary sources (like textiles, cosmetics and industrial processes).²⁸ Delegates also mentioned the need to make use of advances in wastewater treatment technologies, in order to remove microplastics efficiently.
3. **INC-3 (Kenya, 2023):** This session explored a lifecycle approach tackling microplastic pollution throughout production and disposal. Major takeaways were recommendations to limit microplastic leakage during manufacturing and transportation, as well as to encourage biodegradable alternatives where possible.²⁹
4. **INC-4 (Canada, April 2024):** Session 4 was focused on regional cooperation, and case studies where successful in reducing microplastic pollution. Discussions also addressed approaches to monitor microplastic contamination in drinking water and the feasibility of integrating microplastic data generation into national legislation that already address environmental pollution.³⁰
5. **INC-5 (Republic of Korea, November 2024):** Even though INC-5 is still to happen, it is anticipated that it will close over the entire

²⁸United Nations Environment Programme, Intergovernmental Negotiating Committees & Resolutions (n.d.), Intergovernmental negotiating committee to develop an international legally binding instrument on plastic pollution, Second session: Paris (UNEP/PP/INC.2/5), May 29–June 2, 2023., available at: <https://www.unep.org/resources/resolutions-treaties-and-decisions/UN-Environment-Assembly-4> (last visited Nov. 15, 2024).

²⁹United Nations Environment Programme, Intergovernmental Negotiating Committees & Resolutions (n.d.), UNEA-5 theme: Strengthening actions for nature to achieve the Sustainable Development Goals (UNEP/EA.5/1/Rev.2), available at: <https://www.unep.org/resources/resolutions-treaties-and-decisions/UN-Environment-Assembly-4> (last visited Nov. 15, 2024).

³⁰United Nations Environment Programme, Intergovernmental Negotiating Committees & Resolutions (n.d.), Fourth session: Ottawa (UNEP/PP/INC.4/5), Apr. 23–29, 2024, available at: <https://www.unep.org/resources/resolutions-treaties-and-decisions/UN-Environment-Assembly-4> (last visited Nov. 15, 2024)



set of guidelines to curb microplastic pollution globally.³¹ Therefore, it looks to prioritize enforceable measures including stricter product labeling, industry-specific emission targets, and international cooperation on research and innovation to eliminate microplastics.

European Union on micro plastic

3.1. The EU Environmental Council adopted the Nature Restoration Law (NRL)

The EU Nature Restoration Law (NRL), the first of its kind aimed at restoring and protecting biodiversity and healthy ecosystems was endorsed by the EU Environmental Council on 17 June 2024.³² The legislation includes all ecosystems, from land, coast, freshwater, forested, agricultural and urban areas. The scope covers major ecosystems such as wetlands, grasslands, forests, rivers, lakes and marine ecosystems (including seagrass beds and coral reefs).

As a first step at least, 20% of degraded terrestrial, marine and freshwater ecosystems within the EU to be restored by 2030, one key component of the NRL by 2030 at least is the focus on providing stronger protection for EU's most valuable ecosystems. One specific goal under the law is to restore 25,000 kilometers of European rivers to a natural, free-flowing state. The EU Joint Research Centre has just published a report to guide this process and sets out key criteria determining the free-flow state. It includes the following: Reconnecting rivers (River segmentation, longitudinal, lateral and vertical connectivity); maintaining sediment and migration pathways; requisite length for restoring rivers.

3.2. The European Strategy for Plastics in a Circular Economy

The Dry Dock belongs to a 2018 initiative by the European Union involving the European Strategy for Plastics in a Circular Economy under the 2015 Circular Economy Action Plan. It focuses on plastics: changing the way we design, use, and manage them for better sustainability. Aware of the dislike of the environmental and health risks posed by microplastics, the EU's Group of Chief Scientific Advisors (GCSA) has made two recommendations.³³ The

³¹United Nations Environment Programme, INC-5: Busan, Republic of Korea, available at: <https://www.unep.org/inc-plastic-pollution/session-5> (last visited Nov. 15, 2024).

³²Council of the European Union, Nature restoration law: Council gives final green light available at: <https://www.consilium.europa.eu/> (last visited Nov. 15, 2024).

³³European Commission, Plastics in a circular economy available at : <https://research-and-innovation.ec.europa.eu/> (last visited Nov. 15, 2024).



need for coordinated action to address micro plastic pollution. The second lays out criteria for assessing biodegradable plastics to see where they might have an environmental edge over regular plastics. In food packaging, for example, the strategy tackles the pivotal role plastics play in their use. Multi-layer plastics play a role in food safety and reducing waste by extending the shelf-life of many products. But their unrecyclability, accompanied by a shortage of alternatives, offers a major hurdle. Banning these plastics without replacements would result in increased food waste, less safety, and a greater environmental toll from food production.³⁴ This too would drive up costs and upset economies of scale, raising costs for consumers.

India on Micro Plastic

4.1. The Plastic Waste Management Rules, 2016

Plastic Waste Management Rules have been issued in India for a much more stringent governance and for improved management of plastic waste. An important provision includes the increase in the minimum thickness of plastic carry bags and plastic sheets to 50 microns from 40 microns, to facilitate collection and recycling of plastic waste. These rules also apply to rural parts of the country for the first time, as plastic waste had made its way to these regions too. In rural areas, these rules are to be enforced by Gram Panchayats. The rules also hold producers, brand owners, and waste generators accountable. Under Extended Producer Responsibility (EPR), producers must implement a system to collect the plastic waste. They have to submit an action plan for waste management to State Pollution Control Boards (SPCBs), otherwise registration will not be renewed for them.³⁵ And producers need to keep records of which vendors they have provided raw materials to, in order to curb unregulated production.

Waste generators (including people, offices and industries) are required to segregate plastic waste at source and pay user fees. No longer can public events organizers wash their hands of the waste created at their events. Non-compliant plastic bags are not allowed to be used by retailers and street

³⁴Matthews C, Moran F & Jaiswal AK, A review on European Union's strategy for plastics in a circular economy and its impact on food safety (2021) *Journal of Cleaner Production* 283, Article 124581

³⁵Taxmann, Plastic and E-Waste Management – An analysis of regulations, responsibilities, and compliance in India, July 29, 2023, available at: <https://www.taxmann.com/> (last visited Nov. 15, 2024)



vendors, who are fined if caught breaking the law. The rules also require the elimination of non-recyclable multi-layered plastics within two years and instruct the Central Pollution Control Board (CPCB) to create guidelines for thermoset plastics that cannot be recycled. Earned income from vendors and shopkeepers registration will help fund waste management and Plastic waste reduction initiatives.

4.2. The Plastic Waste Management Amendment Rules, 2021

Making this announcement, the Ministry of Environment, Forest and Climate Change stated that the Plastic Waste Management Amendment Rules were introduced to “minimize the ecological damage” from plastic litter.³⁶ The regulation outlaws single-use containers and tableware with little functionality and high littering potential, like plastic ear buds, balloon sticks, candy sticks, polystyrene decorations, cutlery, and various types of packaging films and banners as of July 1, 2022. Plastic carry bags have to be of minimum thickness of 75 microns with effect from 30th September 2021 or and 120 microns with effect from 31st December 2022. Additionally, plastic carry bags have to reuse and should not be thrown away after use.³⁷ The rules also impose Extended Producer Responsibility (EPR) on producers, importers and brand owners (PIBOs), so that they collect and channel plastic packaging waste to be treated “environmentally safe management”. Finally, the EPR guidelines have been required by law to ensure compliance. These actions are indicative of a holistic approach towards minimizing plastic waste and its effects on terrestrial and aquatic ecosystems, while promoting sustainable usage patterns.

4.3. The Plastic Waste Management (Amendment) Rules, 2022

Extended Producer Responsibility (EPR) for plastic packaging was recently defined in detail with the issuance of the Plastic Waste Management (Amendment) Rules, 2022. The regulations are built on specified targets for recycled plastic packaging waste, reusable rigid plastic packaging and recycled plastic content in new products. In line with the ‘polluter pays’ principle, the rules hold entities liable for environmental compensation if they are unable to meet

³⁶Central Pollution Control Board, Plastic Waste Management Amendment Rules, 2021, Aug. 12, 2021, available at: <https://cpcb.nic.in/uploads/plasticwaste/Notification-12-08-2021.pdf> (last visited Nov. 15, 2024)

³⁷Ministry of Environment, Forest, and Climate Change, Government notifies the Plastic Waste Management Amendment Rules, 2021, Press Information Bureau (2021), available at: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1745433> (last visited Nov. 15, 2024)



EPR targets. This concept states that the offenders have an equal society's (public) responsibility to pay for the adverse effects on the environment, regardless of guilty intention, intending thereby to curb / reduce pollution also to ameliorate environment health. They also create a strong foundation for improving the circular economy around the management of waste from plastic packaging.

4.4. The Plastic Waste Management (Amendment) Rules 2024

Biodegradable plastics are materials that bio-degrade without leaving microplastics, as per the Plastic Waste Management (Amendment) Rules. But the rules are vague on what the chemical tests should entail to confirm microplastic absence, and the level of reduction necessary to consider it eliminated. The amendment allows the manufacture of carry bags and products made from compostable or biodegradable plastics, provided they conform to labeling standards prescribed by the Food Safety and Standards Authority of India (FSSAI). They are required to get the manufacturers registered/certified by the Central Pollution Control Board (CPCB) before the sale of these products³⁸ where manufacturers are also required to process pre-consumer plastic waste and report to the relevant pollution control authorities.

4.5. Extended Producer Responsibility (EPR)

The Hazardous and Other Wastes (Management and Transboundary Movement) Second Amendment Rules, 2024 will come into effect on 1 April 2025 and will ensure Extended Producer Responsibility for producers of non-ferrous scraps such as aluminium, copper and mercury.³⁹ These amendments shall strengthen environmental protection while maintaining the responsibility of a business sector that includes hazardous wastes, in compliance with the 2016 rules. EPR aims to ensure that producers are responsible for the safe collection, recycling, and disposal of hazardous waste. Such methods are in accordance with sustainable waste management practices aimed at minimizing environmental impacts and promoting the responsible utilization of resources. By focusing on the entire lifespan that hazardous materials have, the rules aim

³⁸Jain, A., Plastic Waste Management (Amendment) Rules, 2022 (2022), available at: https://environment.delhi.gov.in/sites/default/files/inline-files/pwm_epr_1.pdf (last visited Nov. 15, 2024)

³⁹Food and Agriculture Organization of the United Nations, Plastic Waste Management (Amendment) Rules, 2024 (2024), available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC227249> (last visited Nov. 15, 2024)



to limit the harmful effects such waste can have on ecosystems and human health. The amendments also highlight heavy penalties for compliance failures. Those who violate these new guidelines could see a up to five year sentence or a fine of one lakh rupees or both.⁴⁰ In case of continuing violations, an additional penalty of up to five thousand rupees is imposed for every day during which such contravention is continued or persisted in.⁴¹ These measures emphasize the necessity of compliance with environmental laws and encourage responsible conduct from all parties involved.

4.6. The Food Safety and Standards Authority of India (FSSAI)

One critical issue that the FSSAI has taken a major step to combat is the contamination of food articles with micro plastics. This project, called Micro- and nano-plastics as emerging food contaminants: establishing validated methodologies and knowledge on their occurrence in diverse food matrices, started in March 2024. Its purpose is to create accurate techniques for detecting microplastics in a variety of food products and to evaluate their distribution and exposure levels in India. All Indian salt and sugar brands tested were found to contain microplastics and the concentrations showed wide variations across brands, found a recent study, including one by Toxics Link. For instance, the amount of iodine varies depending on the type of salt in use, and iodized salt has the highest concentration of those iodine pieces, standing at 89.15 pieces per kilogram whereas organic rock salt has the lowest at 6.70 pieces per kilogram.⁴² The project will work with top research institutions to develop standardized protocols for analysis and create critical data on consumer exposure.

These goals should help in formulating the standardized methods of testing, inter-laboratory comparisons, and consequent regulatory interventions towards food safety in the FSSAI. Through this initiative, India is taking a step not only to protect public health in India, but also contributing to the global effort to understand and mitigate microplastic contamination in food.

⁴⁰Hazardous and Other Wastes (Management and Transboundary Movement) Second Amendment Rules, 2024, Chapter VIII: Extended producer responsibility for scrap of non-ferrous metals (2024)

⁴¹*ibid*

⁴²Press Trust of India, FSSAI begins project on microplastic contamination (2024), available at: https://fssai.gov.in/upload/media/TheHindu_19082024.pdf (last visited Nov. 15, 2024)



4.7. Tamil Nadu and Puducherry Paper Cup Manufacturers Association vs. the State of Tamil Nadu

Tamil Nadu and Puducherry Paper Cup Manufacturers Association vs. The State of Tamil Nadu,⁴³ the Tamil Nadu government in India announced a ban on the manufacture, sale, and use of “use and throwaway plastics” effective as of January 1, 2019. The ban imposed under the Environment Protection Act included many plastic products, but no mention of non-woven bags was made on the day the ban was announced, and only a clarification was issued later. The appellants disputed the ban, contending that paper cups were recyclable, and that the ban would hurt the livelihoods of many workers. They argued that the government did not adhere to the proper consultative process mandated by environmental legislation.

The Supreme Court ruled that the government has the authority to impose such a ban as it is in the public interest to prevent pollution. The Court cited previous judgements such as *Liberty Oil Mills*⁴⁴ and *Dharampal Satyapal Ltd. v. CCE*⁴⁵ which recognized that in exigent circumstances, pre-decisional hearings are not obliged.

Conclusion

Microplastic pollution is an urgent environmental and public health concern that requires strong legal and regulatory approaches. This paper highlights both global and local efforts to mitigate the crisis as being a combination of international resolutions, Sustainable Development Goals (SDGs) and legislative measures taken by India. Although these frameworks have provided a good starting point, enforcement remains weak and public information scarce. Microplastic pollution is complex and requires a holistic and coordinated strategy. Amending existing legislation to reflect emerging threats like the infiltration of microplastics into food and water systems will be equally important. By working together, industries, policymakers, and researchers can promote the use of good biodegradable, cheap alternatives to plastic, reducing reliance on environmentally unfriendly materials. The integration of microplastic management in SDG implementation is important and synergy across environmental and public health goals is critical to strengthening efforts.

⁴³Tamil Nadu and Puducherry Paper Cup Manufacturers Association v. State of Tamil Nadu, Civil Appeal No. 8536 of 2022, 2023 LiveLaw (SC) 923

⁴⁴*Liberty Oil Mills v. Union of India*, (1984) 3 SCC 465

⁴⁵*Dharampal Satyapal Ltd. v. CCE*, (2015) 8 SCC 519



A comprehensive strategy is needed to combat the ubiquitous plight of microplastic pollution. Improving monitoring systems are fundamental which will keep track on microplastic pollution on ecosystems and food webs respectively creating a data-driven policy process. Educating the society on the adverse consequences of microplastics and discouraging indiscriminate use of plastics and waste generation like single use of plastics through public awareness campaigns should be given the priority. It needs to be incentivized, too: Governments can financially and technologically support industries that are developing sustainable, biodegradable alternatives to traditional plastics. Collaboration is essential, both domestically and internationally, to facilitate the sharing of best practices, technologies, and regulatory best practices. It is legally necessary for strict adherence to the existing guidelines surrounding waste management, specifically the Plastic Waste Management Rules, and for the ambit of Extended Producer Responsibility (EPR) to be broadened to include microplastics. Stricter penalties for non-compliance, coupled with a more comprehensive integration of microplastic management into environmental and public health regulations, can significantly mitigate the impact of this pressing issue.

JUDICIAL-LEGISLATIVE DYNAMICS ON MARITAL RAPE IN INDIA



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Sneha Singh**

Abstract

Marriage is a primary social institution, and its success is based on mutual respect and trust. But, is there a place of force or arbitrariness within marital relations? Research suggests that youth are increasingly skeptical about marriage, shaped by changing attitudes towards individualism and equity. Such complexity is mirrored in the legislative and judicial approaches to criminalizing marital rape in India. Although the judiciary has progressively acknowledged a married woman's right to autonomy, dignity, and consent, parliament hesitates, influenced as it is by cultural beliefs that treat marriage as a primary social institution and see it as falling outside the ambit of criminal law. Using inductive research basic, this study examines the already established legal framework and then decisions made by the courts on existing legislation (or lack of it) and how it created injustices for women in marriage, and therefore how it must go further.

Keyword: Marital Rape, Judicial & Legislative Approach, Women's Dignity, Gender Justice

1. Introduction

Safeguarding remains an exception in India (section 63, Exception 2 of the BNS, 2023)¹. The most agonizing aspect of the representation is the section about marital rape that is left unpaid: if a husband and wife have sex and it is discovered to be non-consensual, it will not be considered rape. Strong

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¹The Bharatiya Nyaya Sanhita, 2023. (Act 45 Of 2023)



cultural views about marriage and a wife's role in it are the foundation of this legal protection for husbands. Nevertheless, the judiciary maintained that in order to protect women's rights and bodily autonomy, it was imperative to use the criminalization of marital rape. However, the legislature is still hesitant to take action. A larger struggle for women's equality in India consists in the ongoing confrontation between the legislative and the judicial pro-feminist points of view. BNS, 2023 still ignores others even if courts have made great headway in questioning outdated ideas. Addressing marital rape is not simply a legal issue but also a vital first step toward justice and equality. It's about realizing every woman has the right to regulate her body—including in marriage—and making sure everyone in society is treated with dignity and respect.

Significance of the Topic

More than just a legal matter, marital rape profoundly affects the life of many Indian women and is a very private subject the legal system mainly ignores. Many occurrences of marital rape go unreported even if sexual assault is becoming more well known, so depriving victims of legal protection. Realizing its importance means realizing the significant psychological and physical damage it generates for families and women. Ensuring that consent and dignity are respected in all relationships—including marriage—is more important than only modifying the laws to stop marital rape.

- *Legal Implications*
- *Societal Impact*
- *Judicial Activism and Legislative Reform*
- *Global Context*

Many women feel locked up and ignored as India's judicial system does not acknowledge marital rape. This lack of awareness implies that authorization could be taken for granted depending merely on the marital status of a pair, therefore depriving victims of justice and support. Social attitudes on gender roles and marriage—which enable violence and stifle open conversations on respect and consent—cause the issue.

Legislative inertia frequently contrasts with the growing tendency within the judiciary to recognise women's rights, which raises concerns about who oversees upholding victims' rights and providing justice. India is at variance with international standards because of its unwillingness to adhere to them and make a commitment to gender equality. Gaining insight from the methods used in other countries might motivate change and teach important lessons.



1.1. Research Questions

The research questions this paper seeks to address are:

- i. What is the legal status of marital rape in India, and how has the judiciary addressed the issue?
- ii. Why has the legislature been reluctant to criminalize marital rape, despite growing judicial support for such a change?
- iii. What impact does this judicial-legislative divide have on gender rights in India?

1.2. Research Objectives

- i. To analyze the legal status of marital rape in India
- ii. To investigate legislative reluctance to criminalize marital rape
- iii. To assess the impact of the judicial-legislative divide on gender rights in India

2. Literature Review

The literature review for the research has been done based on themes and the major themes are:

- *Historical Context and Legal Framework*
- *Judicial Perspectives and Interventions*
- *Legislative Reluctance*
- *The Impact of the Judicial-Legislative Divide*
- *International Perspectives and Comparative Analysis*

Due to historical and cultural factors, there has been much discussion on the legal status of marital rape in India. In keeping with colonial-era views that still exist today, Section 375 of the Indian Penal Code of 1860² exempts non-consensual sexual relations within a marriage from being regarded as rape. According to academics³, this exemption restricts women's liberty in marriage by upholding the idea that marriage entails unqualified assent. Social conventions that consider a wife's consent to be final, depriving women of the ability to refuse, support this legal exception. The literature focuses on how legal, social, and cultural issues intersect to prevent legal reform and impede the identification of marital rape.

²The Indian Penal Code 1860, (Act 45 of 1860), s. 375.

³Bhavesh Gupta and Meenu Gupta, "Marital Rape: Current Legal Framework in India and the Need for Change" 1(1) Galgotias Journal of Legal Studies 16 (2013).



The literature shows that the women's experiences of marital rape are shaped by societal conventions surrounding marriage and sexuality, which also affect how the public views the problem. Due to social pressures and stigma, many women feel compelled to put up with abuse, which makes it more difficult for them to pursue legal action⁴. Cultural narratives frequently portray marriage as a duty in which women must prioritize caring for others, which results in a lack of acknowledgment of their rights and complaints, as pointed out by the scholar. Women find it challenging to believe that they are worthy of justice and safety in marriage because these narratives not only excuse abuse but also silence them⁵. Judicial activism has played a significant role in challenging traditional views on marital rape. Menon-Sen and Rao⁶ look at important Supreme Court decisions that have gradually upheld women's rights and physical autonomy. By holding that sexual contact with a minor wife is deemed statutory rape, the seminal decision "Independent Thought vs. Union of India"⁷ fundamentally rejected the broad legal immunity accorded to marital status and signalled a sea change in Indian law. This decision is regarded as an important first step in creating a thorough legal system that deals with rape in marriages.

Legislative attempts to make marital rape a crime have faced strong opposition, despite this increasing judicial acceptance. According to academics, this hesitancy is a result of deeply ingrained cultural norms that place a higher value on family honour and traditional gender roles than on women's rights. He goes on to say that political dynamics have impeded legislative reform efforts because of patriarchal norms and conservative fractions' fear of retaliation⁸. Furthermore, the researcher⁹ points out that political parties frequently put their electoral objectives ahead of women's rights, which causes a halt

⁴Wendy M.Johnson, Media Influences on Cultural Norms that Perpetuate Sexual Violence and Silence Victims in the US and India: A Cross-Cultural Comparative Analysis (2022) (Unpublished Master's thesis, Harvard University).

⁵Debanjan Banerjee and T.S Sathyanarayana Rao, "The Dark Shadow of Marital Rape: Need to Change the Narrative" 4(1) Journal of Psychosexual Health 11 (2022).

⁶Kalyani Menon-Sen A K ShivA Kumar, "How Free? How Equal?"(2001) (Report commissioned by the United Nations' Office of the Resident Coordinator in India).

⁷(2017) 10 SCC 800.

⁸Pratiksha Baxi, "Sexual Violence and its Discontents" 43(1) Annual Review of Anthropology 139 (2014).

⁹Sarah M. Harless, "From the Bedroom to the Courtroom: The Impact of Domestic Violence Law on Marital Rape Victims "35 Rutgers LJ 305 (2003)

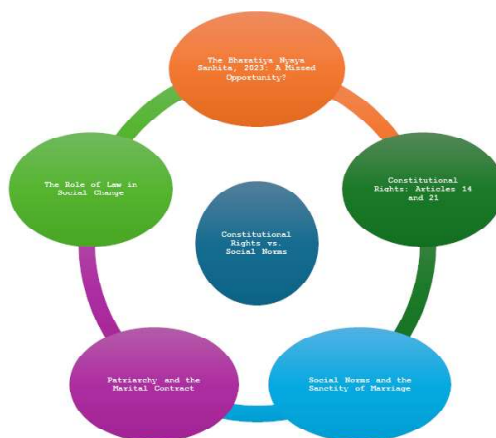


on this important subject. The disparity between legislative inertia and judicial advocacy greatly impacts gender rights in India. The discrepancy renders women more vulnerable and denies them legal protection against domestic violence. His studies indicate that the lack of explicit laws defining marital rape as a crime not only keeps victims from getting justice but also reinforces cultural attitudes that minimize women's rights in a marriage. The worldwide discussions on the concept of marital rape can provide us with a platform to understand its challenges and consequences. Comparative studies such as those conducted by researchers¹⁰ show that many countries have effectively passed laws prohibiting marital rape, therefore attesting to greater respect for women's rights as fundamental human rights. All these trends and initiatives will provide legal jurisprudence for India to bring legal reforms. This will provide an opportunity to understand the trend of acceptance of women's autonomy in marriage. The existing literature suggests that there is complexity in the Indian legal system, courts, and society on the point of marital rape. While time in between judiciary through the judicial review has tried to establish a harmonious relationship and highlight women's rights. To properly advocate for a legislative framework that recognizes and supports women's rights inside marriage, one must understand the historical, cultural, and social elements of this problem. More research on the consequences of the judicial-legislative division will help to direct policy adjustments considering contemporary ideas on human rights and gender equality.

3. Constitutional Rights vs. Social Norms

The argument over marital rape in India is representative of a more profound struggle between constitutional rights and deeply ingrained social norms, underscoring the conflict between the conservative cultural values that still shape social and political discourse and the progressive legal principles enshrined in the Indian Constitution. Whether the government can or should challenge ingrained social norms that prioritize the sanctity of marriage over the rights and autonomy of individuals within that institution—especially women—is at the center of this dispute.

¹⁰Kashish Jhunjhunwala and Shashank Shekhar, "Breaking the Chains: Exploring Marital Rape in India and Its Comparative Analysis with International Jurisdictions". 6 Int'l JL Mgmt. & Human 3447 (2023).



All citizens are guaranteed fundamental rights under the Indian Constitution, such as equality before the law (Article 14) and the right to life and personal liberty (Article 21). Article 14¹¹ guarantees equal treatment for all people, regardless of gender, and forbids discriminatory activities. According to the judiciary's interpretation of Article 21, life with dignity is guaranteed, along with bodily autonomy, privacy, and personal liberty. Proponents contend that because it infringes on women's rights to equality, autonomy, and bodily control, non-consensual sex inside marriage ought to be illegal. This right has been upheld by the Supreme Court in rulings such as *K. S. Puttaswamy*¹². Though societal traditions frequently value marriage as a holy institution, India's constitutional structure supports gender equality and individual autonomy. Marriage is seen as a lifelong bond, with the wife's primary role being caretaker and subordinate to her husband. These traditional roles influence legislative attitudes towards marital rape. Section 63, BNS, 2023¹³, exemption of marital rape reflects these patriarchal values, assuming a wife's consent to sexual relations as implicit and continuous. This undermines women's rights to her husband's authority, reinforcing a marital hierarchy.

The marital rape exemption is argued to undermine marriage due to a patriarchal view that views marriage as an institution that grants unconditional sexual rights to the husband. This view views a wife's identity and rights as subsumed by her marital role, limiting her autonomy and individuality. Critics argue that this view is outdated and fundamentally at odds with constitutional principles of equality and dignity. They argue that the marital contract should

¹¹The Constitution of India, art. 14.

¹²*K.S. Puttaswamy v. Union of India*, (2017) 10 SCC 1.

¹³*Supra* note 1, s.63.



not negate the rights of individuals involved, particularly their right to consent and bodily integrity.

The conflict between constitutional rights and social norms raises questions about the role of law in challenging and transforming societal values. Legal reforms have historically changed deeply entrenched practices in India, such as the abolition of Sati and criminalization of dowry. In the context of marital rape, law can act as a progressive force, pushing society towards women's rights to equality and personal autonomy. Legal scholar Martha Nussbaum argues that law can protect vulnerable populations by providing a normative framework that upholds individual dignity and freedom. The BNS, 2023, which is a new and modern Indian legislation brought by the legislature recently has been criticized for not fully addressing the concept of marital rape. The researcher finds that many of the critics argue that Indian culture values the institution of marriage more than anything. The Indian judiciary advocating for the rights of the women and their autonomy, but on the debate of marital rape they are waiting for the legislature to act upon. While legislature on the other hand is not yet ready for any legislative change as they have fear of misuses of power and procedure of the legislation. And, they think that it will hamper the institution of marriage in totality the Indian society. This is the conflict between contemporary constitutional values and long-standing social norms in India. By the time India will have to bring the legal system in line with the constitutional principles and foster a culture that respects women's autonomy and equality within marriage.

4. Judicial Perspective and Key Judgments

The Indian judiciary been the guardian has always taken the progressive steps on gender equality and women's rights. It has always been the torch bearer of the women's rights and safeguarded it. The judiciary has sought to address the rights of married women within the constitutional framework, particularly on physical autonomy and personal liberty, through historic judgments. However, these judicial interventions are typically constrained by the lack of legislative reform, resulting in a piecemeal, case-by-case approach to marital rape.

One of the most significant judgments in this context, *Independent Thought v. Union of India*¹⁴, criminalized marital rape involving minor girls by reading down the exception in Section 375 of the IPC¹⁵ that allowed sexual intercourse with a minor wife aged 15-18. The Supreme Court held that such an exception

¹⁴(2017) 10 SCC 800.

¹⁵Supra note 2, s.375.



violated the rights of minor girls under Article 21 (right to life and personal liberty) and the Protection of Children from Sexual Offences (POCSO) Act, 2012. By raising the age of consent for married girls to 18, the court took a significant step in challenging the broader marital rape exemption for adult women. However, the ruling only applies to child marriages, leaving the legal status of marital rape in adult marriages unchanged.

Section 497 of the IPC, which made adultery a crime but excused males from prosecution if the lady involved was married, was overturned by the Supreme Court in the case of *Joseph Shine v. Union of India*. According to the court, the clause infringed women's rights to equality, autonomy, and dignity under Articles 14 and 21 of the Constitution and treated them like property. Even though the case was about infidelity, the ruling's focus on women's equality and agency in marriage has significant ramifications for the larger problem of marital rape. Further legal challenges to the marital rape exception were made possible by the verdict, which demonstrated the judiciary's willingness to acknowledge individual rights inside marriage. The "*State of Maharashtra v. Madhukar Narayan Mardikar*"¹⁶ case is pertinent to the judiciary's interpretation of consent and physical autonomy, even though it has nothing to do with marital rape. The Supreme Court ruled in this case that "even a woman of easy virtue is entitled to privacy and no one can invade her privacy as and when he likes." The court's decision upheld the rights of all women to bodily autonomy and the freedom to decline sexual approaches, irrespective of their social standing. This case is often cited in discussions on marital rape as it underscores the importance of consent, irrespective of the relationship between the parties involved.

In "*Suchita Srivastava v. Chandigarh Administration*"¹⁷, the Supreme Court ruled on the issue of reproductive rights, emphasizing that a woman's right to make reproductive choices is a dimension of personal liberty under Article 21 of the Constitution. While the case dealt with a mentally challenged woman's right to carry her pregnancy to term, it reinforced the principle of bodily autonomy and a woman's right to make decisions regarding her own body. The judgment is often cited in the context of marital rape because it underscores the importance of consent and bodily integrity within the framework of personal liberty. Though primarily concerned with sexual harassment in the workplace, the landmark judgment in "*Vishaka v. State of Rajasthan*"¹⁸

¹⁶(1991) 1 SCC 57.

¹⁷(2009) 9 SCC 1.

¹⁸(1997) 6 SCC 241.



established important principles of gender equality and the right to a dignified life under Article 21 of the Constitution. The court laid down guidelines for addressing sexual harassment, framing the issue within the context of fundamental rights. The Vishaka judgment is significant for its recognition of sexual violence as a violation of constitutional rights, setting a legal precedent that could support future challenges to the marital rape exemption. The Delhi High Court acknowledged marital rape as a type of domestic violence in the case of *Kirti Singh v. Union of India*¹⁹, citing it as a grave breach of women's constitutional rights. The court declared that the immunity granted to spouses under Section 375 for marital rape is incompatible with the gender equality principles of the constitution and called for a re-examination of the exemption. However, the lack of parliamentary support prevented the court from rendering a legally enforceable decision on the criminality of marital rape for adult women, underscoring the judiciary's limits in the absence of legislative reform.

Amnesty International and other international human rights organizations have also pointed out that the Indian judiciary has adopted a progressive position in recognizing the detrimental effects of marital rape. Despite being a signatory to international agreements such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)²⁰, India's legal system still faces challenges in striking a balance between international legal requirements and cultural values. Amnesty in its various reports, has praised certain judicial interventions in India for challenging discriminatory laws but has also criticized the ongoing legislative reluctance to amend laws that exempt marital rape²¹. While the Indian judiciary has taken significant steps toward recognizing the violation of fundamental rights involved in marital rape, it remains constrained by the absence of legislative reform. Key judgments such as "*Independent Thought v. Union of India*" and "*Joseph Shine v. Union of India*"²² have chipped away at legal provisions that perpetuate gender inequality within marriage, but these efforts are limited in scope. The judicial strategy stays ad hoc and handles individual cases without enacting systemic change in the absence of broader legislative action. Although the Bharatiya

¹⁹(2019) 243 DLT 147.

²⁰Women U. N. ,Convention on the Elimination of All Forms of Discrimination Against Women (1979). available at: <http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm> (last visited on Dec.31, 2024).

²¹Ramesh Thakur, "Human Rights: Amnesty International and the United Nations". 2 Journal of Peace Research 143-160 (1994).

²²(2018) 2 SCC 198.



Nyaya Sanhita, 2023, offers a chance for a more comprehensive legal reform, the judiciary's function will remain restricted to interpreting laws that do not completely guarantee women's rights in marriage until it has provisions that address marital rape.

5. Analysis: The Judicial-Legislative Divide

The conflict between progressive legal changes and societal conservatism is exemplified by the judicial-legislative disagreement on marital rape in India. The legislative has continuously opposed requests for criminalization of marital rape, despite the judiciary's growing recognition of it as a grave breach of fundamental rights, including equality, dignity, and personal liberty. This hesitancy is caused by political calculations that put social stability ahead of revolutionary change, in addition to a cultural devotion to traditional marriage norms. As a result, many women are caught between legislative inaction and judicial acknowledgment of their rights, reflecting a broader gap within institutions and society that impedes progress toward gender equality. A cultural transformation that prioritizes women's autonomy and well-being is necessary to address this issue and enable significant legal reform.

Judiciary's Progressive Stance on Marital Rape—The Indian judiciary, especially its higher courts, has taken a forward-thinking stance on marital rape, defining it as a violation of constitutional rights. The values of bodily integrity, dignity, and individual autonomy as stated in Articles 14²³ and 21²⁴ of the Indian Constitution have been emphasized by landmark decisions. In pivotal cases such as “Independent Thought²⁵ and Joseph Shine case”²⁶, the judiciary has challenged patriarchal norms that strip women of their agency regarding sexual consent. Judges have highlighted that excluding marital rape from criminal prosecution perpetuates inequality and violates women's constitutional rights. For instance, the Independent Thought case criminalized marital rape involving minors by nullifying conflicting legal provisions, while the Joseph Shine ruling decriminalized adultery, affirming women's status as equal partners in marriage. Despite these progressive interpretations, significant barriers to comprehensive legal reform persist. The judiciary is limited to offering case-specific remedies due to existing legal frameworks and the lack

²³The Constitution of India, art. 14.

²⁴The Constitution of India, art. 21.

²⁵Supra note 14 at 8.

²⁶Joseph Shine v. Union of India, (2018) 2 SCC 198



of legislative support. As a result, many women continue to encounter obstacles to justice, underscoring the urgent need for reforms that fully protect their rights within marriage.

Legislature's Reluctance and Political Calculations—The Indian legislature has approached the issue of marital rape with notable caution, in stark contrast to the judiciary. Subsequent administrations have been reluctant to change Section 375 of the Indian Penal Code to make marital rape for adult women a crime, despite suggestions from committees such as the Verma Committee following the 2012 Nirbhaya case and continued lobbying by women's rights organizations. Deeply ingrained political, cultural, and societal reasons are the cause of this hesitancy²⁷. Indian society views marriage as sacred, which is one of the main causes of legal inactivity. Marriage is seen as a holy tie as well as a legal agreement. The main reason for non-criminalization of marital rape in India is that most of the thinkers think that it will endanger the institution of marriage and it will instable the relationship between the couples. But this is just an assumption and there is no static proof of the same. Also, there is a fear about the misuse of the statute and increase of the case of false accusations. But these claims are missing the legal protection provided for such false accusations and denying the right of the women victims the justice. Legislatures are also worried about the non-acceptance, and retaliation by different conservative and religious groups. This is one of the most politically delicate matter questioning the patriarchal norms and traditional gender roles. The legitimate fear of abuse of law and the conservative mindset about the gender role in India are the two because which is creating hurdle for the change. There is also a lack of political will to criminalise it as they think that as a society right now, we are not ready for it. In a democratic country like India, where gender equality is secondary to upholding social order and tradition, this wider failure to confront marital rape is indicative of a systemic problem. The current leaves many women vulnerable and without legal protection, trapped in a system that prioritizes tradition over justice.

The Institutional Impact of the Judicial-Legislative Divide—As in India the doctrine of separation of power is there and following then doctrine the legislature and the judiciary maintains their limits and not set into the field of each other. But the difference of opinion and their stands on then criminalization of marital rape is not only the territorial limits but it is one of the important

²⁷Jagdish Sharan Verma, "Report of the Committee on Amendments to Criminal Law" (2013).



structural problems inside democracy. The denial of such rights is questioning the ignorance of the independence of judiciary and its way of questioning accepted cultural outdated values. The reluctant response of the legislature shows that they fear the change and their unwillingness to promote social reform, especially in regions influenced historically. To fill the gaps the judiciary one way or other works to safeguards the rights of the victim and fill in the lack of legislative action, through judicial activism. Its time to time fuels the element of judicial overreach. Courts are only allowed to interpret and enforce laws, and hence this limits their ability to implement meaningful reform. The courts have power to set the precedents which it did time to time through several landmark judgments but the problem can not be solved without proper legislative backing. Judiciary alone cannot advocate women's rights without the support of the legislature. Legislative reforms with proper procedural legal execution are needed to remove the antiquated norms which infringe then rights of the women within marriage. By removing the disparity system can defends women's rights and promotes equality in marriage.

Bridging the Divide: The Role of Public Discourse and Advocacy

—There is a need of harmonious construction been the judiciary and the legislature on the point of criminalisation of marital rape in India. A cultural transformation is necessary to bring the change in the conventional perspective regarding the element of marriage, gender role, and rights of women within marriage. A new legislation is the need of hours but it should be made keeping in mind the societal setup. The role of judiciary is very crucial as providing the guidance to the legislature to make a law which is good in letter and smooth in implementation and execution. Public discourse very essential for this process because the acceptance of law should be there. Awareness and schooling are necessary for shifting the public sentiment may shift towards criminalizing marital rape. And it can only be done through the initiatives of women's rights organizations, academic discourse, media attention and through other necessary means. Cultural taboos about marriage needs to be removed through awareness the role of consent and women's rights needs to be addressed, prioritizing individual rights over patriarchal conventions should be the aim of the initiatives. The discussion of criminalisation of marital rape is burning all over the world. Many of the countries has criminalized it while some has not. But India on the humanitarian grounds and on the ground of constitutional doctrines must investigated the matter very cautiously for the ends of justice. International human rights norms, notably the Convention on the "Elimination of All Forms of Discrimination Against Women" also suggests



to focus on safeguarding the women rights. A thorough legal framework to fight marital rape is needed to challenge out-of-date practices and advance a culture that protects women's rights and autonomy.

The case that a woman's consent inside a marriage comes second to her responsibility as a wife promotes a structure that gives traditional family values high precedence over women's rights, therefore sustaining gender disparity in the legal system and society at large. The existing disparities between judiciary and legislature over the criminalization of marital rape is the result of conflict between the legal mechanism and the conservative societal ideology in India. Despite significant efforts by the judiciary to recognise the rights of women within marriage, legislature is still denying the women full autonomy and equality within marriage due to social and cultural norms. By advocating component of Indian societal structure legislature is denying the criminalization of marital rape. As it may cause a situation for the failure of the institution of marriage in India. But this is creating the imbalance in the current scenario and hence some concrete attempt must be made in law and cultural standards. Otherwise, goal of gender equality will remain unattainable in India.

6. Conclusion and Recommendations

The disagreement between India's judiciary and legislature over marital rape constitutes a substantial impediment to safeguarding women's constitutional rights and realizing gender justice. Although the court has gradually diminished patriarchal concepts of marriage through various instances, substantial and lasting change can only be realized via coordinated legislative efforts. The subsequent recommendations aim to rectify this deficiency and establish a legislative framework that protects women's rights in marriage while honoring their physical autonomy.

- i. The Role of the Bharatiya Nyaya Sanhita, 2023**
- ii. Public Awareness Campaigns to Challenge Societal Attitudes Toward Marriage and Consent**
- iii. Judicial Training Programs on Gender Sensitization**
- iv. Addressing Marital Rape Through a Coordinated Approach**

India's laws still fail to recognize marital rape as a crime under the BNS, 2023, which denies married women the right to consent or refuse sex. This legal loophole reinforces outdated ideas that a wife must submit to her husband, stripping her of bodily autonomy. Lawmakers have a responsibility to change



this by removing the marital rape exception and ensuring that consent is respected in all relationships, including marriage. Criminalizing marital rape is not just about legal reform—it's about changing deeply ingrained cultural beliefs. Many still view marriage as a license for control rather than an equal partnership. Awareness campaigns and education can help dismantle these myths, teaching that marriage does not override a woman's right to say no. Schools, media, and advocacy groups must work together to spread awareness about consent and gender equality.

The legal system also needs reform. Judges, lawyers, and law enforcement officials often hold conservative views about marriage and gender roles, leading to biased decisions. Gender-sensitization training can help them better understand consent, equality, and women's rights. Stronger legal protections, along with fair and informed judicial decisions, would ensure justice for survivors of marital rape. Ending marital rape in India requires a combined effort—legal reform, public awareness, and a shift in cultural attitudes. Women's rights organizations, civil society, and lawmakers must push for change to break the silence around marital rape and ensure that all women, regardless of their marital status, have control over their own bodies.

The ongoing debate on marital rape in India is not a war against the men or the husbands but it is a conflict with the patriarchal mind-set of the Indian society. It is a tussle between gender justice, social norms, and legal reform. The judiciary and legislature must build some similar ground to talk on the same matter. A comprehensive and well-coordinated plan is needed so that a fruitful result can be drawn. The plan must encompass different dimensions like, public education, institutional training, and legislative reform. Only removal of marital rape exception forms the statute or bring new law will not fulfil the purpose but we need to understand the need of the hours and the societal dimension of India. Only by balancing between two can cater the good results. Societal advancement and legal reform both is required for safeguarding women's rights and physical autonomy within marriage. Indian society has to address the issue of marital rape is essential for achieving gender equality within India's legal and social frameworks, as well as for advancing women's rights.

THE INTERSECTION OF ENVIRONMENTAL LAW AND HUMAN PSYCHOLOGY: BEHAVIOURAL FACTORS INFLUENCING ENVIRONMENTAL POLICY COMPLIANCE



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Abstract

Environmental degradation has emerged as one of the most critical global challenge, with significant social, economic, and ecological implications. India is facing severe environmental issues and the compliance with environmental regulations often depends on behavioural drivers that go beyond mere legal frameworks. This paper explores how psychological factors influence individual and pro-environmental behaviour in the context of environmental policy compliance. This paper examines the existing legal framework in India, highlighting both its strengths and limitations in promoting environmental compliance. The studies comprised of researches where it was stated that the psychological dimensions of environmental attitude are complex and multifaceted. The influence of Social norms, community behaviours, peer behaviour, religious beliefs, and traditional practices can either encourage or hinder compliance with environmental laws. Additionally, moral values, particularly the sense of responsibility toward future generations and nature, have a significant impact on individuals' environmental behaviour. It was concluded that the findings underscore the need for a holistic approach that combines legal enforcement with behavioural interventions to address India's pressing environmental challenges. By integrating insights from psychology, the strategies may be drafted for improving compliance, such as promoting environmental education, leveraging social influence, and designing policies that align with psychological motivations.

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Keywords: *Environmental Law, Human Psychology, Psychological Factors, Policy Compliance, Environmental Governance*

1. Introduction

In the recent past, the concern for battling climate change seems to have taken the center stage world over and rightfully so. A plenty of global conventions, treaties and conferences highlighting the significance of ensuring the health of our planet, bear evidence to the fact that the threat of climate change is real and needs to be dealt with collective effort. The largest democracy in the world, India, has been and continues to be an active participant in such endeavours. In order to uphold the spirit of the Indian Constitution along with meeting the international commitments, environment related legislation as The Wildlife (Protection) Act, 1972 and The National Green Tribunal Act, 2010 etc. have been enacted in India from time to time. However, the implementation of such laws has not been very efficient, with lack of citizen engagement being a major reason.¹

The gap between law and behaviour can be attributed to factors such as lack of public awareness, inadequate enforcement mechanisms, and psychological resistance to change. Even the Constitution of India provides provisions on the subject of environment protection. For instance, Article 51A(g) prescribes the Fundamental Duty of every citizen of India to protect and improve the Natural Environment and have compassion for all living creatures² and Article 48A states that “The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country”³. While India has a robust set of environmental laws, including the Air Act (1981), Water Act (1974), and the Environment Protection Act (1986), enforcement remains inconsistent.

Environmental degradation has emerged as one of the most critical global challenges, with significant social, economic, and ecological implications. In India, a country facing severe environmental issues such as Air and Water Pollution, Deforestation, and Waste Mismanagement, effective environmental law enforcement is paramount^{1, 20}. However, compliance with environmental regulations often depends on behavioural drivers that go beyond mere legal frameworks.

¹Jeshtha Angrish and Swastik Bhardwaj, “Formulation and Enforcement of Environmental Laws: Crucial Role of Psychology” 16 BSSS Journal of Social Work 141 (2024).

²The Constitution of India, art. 51A(g)

³The Constitution of India, art. 48A



Environmental law covers a wide range of topics, including waste management, biodiversity protection, air and water quality, and climate law whereas, Environmental psychology is a multidisciplinary social science that examines the relationship between human beings and our surroundings.

The intersection of Environmental Law and Psychology explores how Psychological factors influence individuals' and organizations' compliance with Environmental policies. Understanding these factors can help policymakers design laws that are more effective and promote sustainable behaviour.

Rio De Janeiro and the World Summit on Sustainable Development held in 2002 in Johannesburg etc. are just a few names in the long list of global conferences that have been instrumental in achieving a common understanding internationally regarding environmental issues⁴. India has always contributed with enthusiasm to every global call for climate action. When all the provisions of the Constitution of India were enforced on 26 January 1950, it did not have any provision directly concerning with the Protection of Environment. The credit for ushering a movement for the cause of environment in India can be traced to the United Nations Conference on Human Environment which was held at Stockholm in 1972. Consequently, provisions relating to Protection of Environment were introduced in the Constitution of India by the 42nd Amendment Act in 1976; thereby making it perhaps the first Constitution in the world which strived to save the degrading environment⁵.

As it is, the Indian way of life is replete with the incredible values of our ancient civilization which is characterized by the concepts of 'Vasudhaiva Kutumbakam' and 'Dharti Mata'. Therefore, it is by virtue of our cultural ethos that we believe that 'The entire World is one Family' and 'Earth is our Mother'. This renders us better equipped to lead a lifestyle which is sustainable and in harmony with nature.

2. Constitution of India and Environment

The Constitution of India looks after the concerns regarding environment mainly through the following three articles:

Article 48A (Protection and Improvement of Environment and Safeguarding of Forests and Wild Life): It was incorporated by the

⁴L. Jianping, L. Minrong, et.al., "Global Environmental Issues and Human Wellbeing", in Li Jianping, Wang Jinnan, et.al. (eds.), Report on Global Environmental Competitiveness 3-21 (2013).

⁵ D.S. Senger, Environmental Law (PHI Learning Pvt. Ltd., New Delhi 2007).2 Supra note 2, art. 51A(g) 3 Supra note 2, art. 48A



Constitution (Forty-second amendment) Act, 1976 and states that the State shall endeavor to protect and improve the environment and to safeguard the forests and wild life of the country³.

Article 51A(g): It was also added by the Constitution (Forty-second amendment) Act, 1976. It places a Fundamental Duty on Indian citizens to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures².

Article 21 (Protection of Life and Personal Liberty): It states that no person shall be deprived of his Life or Personal Liberty except according to procedure established by law. It includes the 'Right to Life' which has unfolded in form of distinct facets over the course of various judgments. One such facet related to clean environment falls under the ambit of right to life which has been construed as "a life of dignity to be lived in a proper environment free from the dangers of diseases and infection"⁶.

Another dimension highlights the right to sustainable development referring to which the Court has held that "balance has to be maintained between environment protection and developmental activities which can be achieved by strictly following the principle of sustainable development".

3. Environmental Laws in India

This section presents a broad outline of some of the major laws pertaining to environment which are enforceable in India at present.

Wild Life (Protection) Act, 1972: The aim of this Act is to put a check on the declining population of wild animals and birds. It places prohibition on the poaching of specific wild animals and birds, with exceptions to be used for educational or scientific research purposes. In addition to this, it also covers the matters regarding designation of particular areas as national parks or sanctuaries⁷.

Forest (Conservation) Act, 1980: As the name suggests, the overall objective of this Act is to conserve forests. It is aimed at thwarting the ecological imbalance and deterioration of environment resulting from deforestation. It makes the prior approval from the central government mandatory for putting forestland to non-forest use⁸.

²Supra note 2, art. 51A(g)

³Supra note 2, art. 48A

⁶The Constitution of India, art. 21

⁷The Wild Life (Protection) Act, 1972 (Act No. 53 of 1972)

⁸The Forest (Conservation) Act, 1980 (69 of 1980)



Environment (Protection) Act, 1986: The objectives of this Act are twofold. First being the initiation of proper actions for the protection and improvement of human environment as per the United Nations Conference on the Human Environment held at Stockholm in June, 1972; and second being to ensure the inhibition of hazards to human beings, other living creatures, plants and property. This Act defines the terms frequently used in the discourse about environmental concerns. For instance, the term ‘environment’ has been defined to include “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”⁹.

National Green Tribunal Act, 2010: Among developing nations, India is one of the forerunners in establishing a green court in the form of the National Green Tribunal (NGT). This innovative judicial mechanism acts as a special ‘fast-track quasi-judicial’ body for delivering prompt justice exclusively in cases involving environment¹⁰. The NGT is working towards halting the uninterrupted march toward industrialization in the post liberalization era of Indian economy. Though it is unlikely that NGT will be the ultimate solution for all environmental issues, it will undoubtedly prove to be a pioneer in providing novel forms of environmental dispute resolution¹¹.

In order to enforce environmental regulations and influence compliance behaviours, the court system is essential. To successfully encourage sustainable activities and safeguard natural resources, the court must have a thorough understanding of the psychological aspects that affect adherence to environmental policies. This summary examines the existing legal system, significant decisions, and the relationship between psychological factors and environmental law enforcement.

The Supreme Court of India’s and other High Courts’ landmark rulings have had a big influence on environmental legislation and compliance:

National Green Tribunal (NGT) Judgment on Art of Living Festival (2017): An environmental damage lawsuit involving the Art of Living Foundation’s World Culture Festival in the Yamuna floodplains was heard by the NGT. The organization was fined by the tribunal, which also ruled it

⁹The Environment (Protection) Act, 1986 (29 of 1986)

¹⁰The National Green Tribunal Act, 2010 (Act No. 19 of 2010)

¹¹S. K. Patra and V. V. Krishna, “National Green Tribunal and Environmental Justice in India” 44(4) Indian Journal of Geo-Marine Science 445-453 (April, 2015)



responsible for harming the environment of the floodplain. In addition to the duties of event planners in minimizing environmental harm, the ruling emphasized the need of preserving riverine ecosystems¹². The function of the NGT in deciding issues involving environmental repair and damage was reaffirmed.

Narmada Bachao Andolan v. Union of India (2000): In this case, the Supreme Court of India considered the effects on the environment and displaced populations of the Sardar Sarovar Dam's construction on the Narmada River. By balancing environmental concerns with development demands, the Supreme Court permitted the building of the dam while highlighting the necessity of appropriate rehabilitation and environmental effect evaluations. The ruling emphasised the necessity of striking a balance between environmental preservation and developmental objectives, with sustainable development serving as a guiding concept¹³.

Union of India v. Vellore Citizens' Welfare Forum (1996): The Court ordered that any activity that could have a negative environmental impact must first have environmental clearance, acknowledging the significance of sustainable development. The decision underlined how important it is to follow environmental laws¹⁴.

Subhash Kumar v. State of Bihar (1991): The Supreme Court affirmed the judiciary's dedication to upholding adherence to environmental regulations safeguarding public health by ruling that the right to have clean water is a basic right under Article 21¹⁵.

M.C. Mehta v. Union of India (1987): The Supreme Court ruled that, in accordance with Article 21 of the Indian Constitution, the right to a healthy environment is a component of the right to life. This historic decision established a precedent for similar challenges in the future and emphasized the judiciary's responsibility in defending environmental rights¹⁶.

Recent Supreme Court decisions in India have focused on interpreting and applying environmental laws with a particular emphasis on protecting forest lands and eco-sensitive areas. Here are some key rulings from 2023:

¹²Manoj Mishra v. Delhi Development Authority, Application No. 65 of 2016, (M.A. No. 130 of 2016)

¹³Narmada Bachao Andolan v. Union of India, 2000 (10) SCC 664.

¹⁴Vellore Citizens Welfare Forum v. Union of India, 1996 (5) SCC 647

¹⁵Subhash Kumar v. State of Bihar, 1991 SCR (1) 5

¹⁶M. C. Mehta v. Union of India, (1987) 1 S.C.R. 819



Interim Order on the Forest Conservation Act, 2023: The Supreme Court issued an interim directive maintaining the broad definition of “forest” as per the landmark Judgement in T.N. Godavarman Thirumulpad Vs Union of India (1996) case¹⁷. This ruling requires the government to adhere to traditional interpretations, despite amendments made under the Forest Conservation Amendment Act, 2023. The court emphasized the continued protection of forests until a final judgment is made on challenges to the recent amendments¹⁸.

Eco-Sensitive Zones (ESZ) Ruling: In April 2023, the Supreme Court clarified its stance on mining activities near eco-sensitive zones. It upheld restrictions on mining within a 1 km radius of protected areas, to prevent environmental damage. This ruling followed up on its previous decisions, ensuring that activities harmful to wildlife and biodiversity are regulated even outside immediate boundaries of protected areas¹⁹.

These rulings highlight the Supreme Court’s ongoing efforts²⁰²¹ to balance environmental conservation with developmental needs, ensuring that legislative changes do not undermine established environmental protections.

The importance of the court in influencing India’s environmental policy, holding polluters responsible, and making sure that progress doesn’t come at the expense of environmental damage is highlighted by these rulings taken together. For striking a balance between ecological protection and economic progress, they act as guiding models.

4. Psycho-Legal Perspectives

In many Indian communities, collective behaviour is often driven by what is perceived as socially acceptable or desirable. The intersection of environmental law and psychology explores how psychological factors influence individuals’ and organizations’ compliance with environmental policies. Understanding these factors can help policymakers design laws that are more effective and promote sustainable behaviour. Here are key psychological aspects that impact environmental policy compliance:

¹⁷T.N. Godavarman Thirumulkpad v. Union of India, 1997 AIR SCW 1263

¹⁸ Interim Order on the Forest Conservation Act, 2023

¹⁹Eco-Sensitive Zones (ESZ) Ruling, 2023

²⁰The Air (Prevention and Control of Pollution) Act, 1981 (Act No. 14 of 1981)

²¹The Water (Prevention and Control of Pollution) Act, 1974 (Act No. 06 of 1974)



Cognitive Biases and Decision-Making

It is observed that people tend to prefer maintaining their current habits over adopting new behaviours. This bias can make it difficult to encourage practices like recycling or reducing energy consumption. As the individuals often prioritize immediate rewards over long-term benefits, When the consequences of environmental harm (e.g., climate change) seem distant, people might not feel the urgency to comply with laws aimed at mitigating such issues²².

Perception of Risk

How individuals perceive environmental risks plays a crucial role in their compliance with regulations. If people view risks like air or water pollution as immediate threats to their health, they may be more likely to support or adhere to environmental regulations. Many people underestimate their susceptibility to environmental risks, which can lead to non-compliance with policies, such as ignoring waste disposal regulations.

Social Norms and Cultural Influences

People mostly look towards what behavioral pattern is prevalent in the society and their perceptions of what others do. If compliance with environmental regulations (e.g., using reusable bags) is seen as a norm within a community, others are more likely to follow. If certain actions or behaviours that are socially approved or disapproved, people do not intend to go against it. Policies that leverage social approval or disapproval can encourage people to adopt environmentally friendly behaviours. Different cultures may prioritize environmental conservation to varying degrees. In societies where communal well-being is valued, policies that highlight collective environmental benefits might gain better compliance.

Motivational Factors

Both Intrinsic and extrinsic motivation plays an important role when it comes to pro-environmental behavior. Intrinsic motivation involves engaging in behaviour because it is personally rewarding, while extrinsic motivation involves behaviour driven by external rewards like tax breaks or fines. Successful environmental

²²Jeshtha Angrish and Swastik Bhardwaj, "Formulation and Enforcement of Environmental Laws: Crucial Role of Psychology" BSSS Journal of Social Work 141-148 (2024), available at : <https://doi.org/10.51767/jsw1613>



policies often need a balance of both to sustain long-term compliance²³. If people believe that they may make a difference through their actions (e.g., reducing personal carbon footprints), they are more likely to comply with policies. It has been observed that education and awareness campaigns play a critical role in fostering this belief.

Environmental Attitudes and Values

Individuals with strong environmental values are more likely to support and comply with environmental regulations. This may include values related to the preservation of nature, sustainable development, and intergenerational equity. It has been seen that individuals with a strong belief in the consequences of environmental degradation and a sense of moral obligation (norm) to take action are more likely to comply with environmental policies and develop a pro-environmental attitude.

Psychological Reactance and Resistance to Regulation

When people perceive that their freedom is being threatened by strict regulations, they may become resistant and deliberately defy rules (e.g., illegal dumping or burning). Understanding this tendency can help policymakers frame regulations in ways that minimize perceived restrictions²⁴.

Framing policies positively (e.g., highlighting the benefits of compliance rather than focusing on penalties for non-compliance) can reduce reactance and improve adherence to laws.

Trust in Authorities

The level of trust that individuals have in government and regulatory bodies can significantly affect their willingness to comply with environmental policies. A high level of trust can lead to greater compliance, as people believe that regulations are in their best interest. If policies are perceived as fair and equitable, individuals are more likely to comply. Transparent communication about how regulations are formulated and enforced can improve perceptions of fairness.

²³H. Jiang, J.N. Kim, et.al., "The Impact of Perceptual and Situational Factors on Environmental Communication: A Study of Citizen Engagement in China" 13 Environmental Communication 582-602 (2019).

²⁴A. Keane, J.P. Jones, et.al., "The Sleeping Policeman: Understanding Issues of Enforcement and Compliance in Conservation" 11 Animal Conservation 75-82 (2008).



Heuristics and Simplification of Complex Information

Environmental issues often involve complex scientific data that can be difficult for the general public to understand. People tend to rely on heuristics (mental shortcuts) to make decisions. Effective communication strategies that simplify information can help increase compliance with regulations by making the desired actions more accessible.



Source: Center for Behavior and the Environment - Rare

Fig.1: Behaviour Influencers. Source: Center for Behaviour and the Environment-Rare

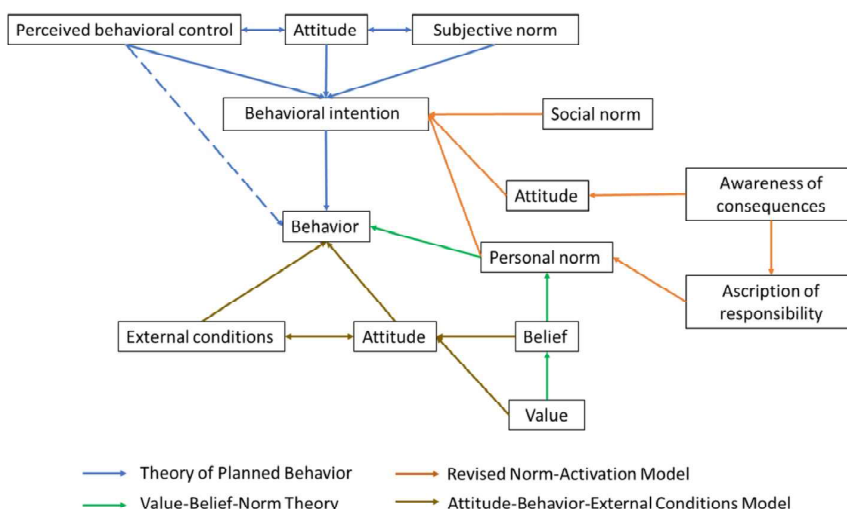


Fig. 2. Predictors of behavior based on four theoretical frameworks.
Source: <https://www.sciencedirect.com/science/article/pii/S2666765722001405>

5. Discussion

Citizens are the agents of change. Combining the understanding of the psychological underpinnings of their individual and societal behavior related to environment, is must for any attempt at environmental behavior modification to succeed. Therefore, in our pursuit of environmental conservation through citizen engagement, learning about the determinants of individual and social



pro-environmental behavior can pave a way for constructive legal mandate on environment eliciting better public engagement. Application of various models of behavior change including the Health Belief Model²⁵, the Theory of Reasoned Action²⁶ and the Transtheoretical Model²⁷ can bring the desired effectiveness to environmental legislation. For instance, the Behavior Change Wheel Model proposed by Michie et al. in 2011, offers a behavior transformation framework called COM-B system. It comprises of three factors which form the core of the Behavior Change Wheel (BCW): capability, opportunity and motivation. This core is encircled by nine different intervention functions that are designed to address the weaknesses in the core. The intervention circle is further surrounded by the policy circle which consists of seven types of policy that may make these interventions possible²⁸.

Social norms and community behaviours also play a critical role. In many Indian communities, collective behaviour is often driven by what is perceived as socially acceptable or desirable. The influence of peer behaviour, religious beliefs, and traditional practices can either encourage or hinder compliance with environmental laws. Additionally, moral values, particularly the sense of responsibility toward future generations and nature, have a significant impact on individuals' environmental behaviour.

Given the immense challenge posed by climate change, adopting an interdisciplinary approach appears essential to avoid catastrophic outcomes. Addressing this crisis requires rapid and significant social transformations. Within this context, psychological research holds significant promise for enhancing climate change mitigation strategies. Greater attention needs to be given to two key aspects: understanding how human behaviors impact the environment and fostering collaboration across disciplines²⁹.

²⁵R.S. Zimmerman & D. Vernberg, "Models of preventive health behavior: comparison, critique, and meta-analysis", 4 *Advances in Medical Sociology* 45-67 (1994).

²⁶G.L. Callahan, "A meta-analysis of the Fishbein and Ajzen theory of reasoned action", *Dissertation Abstracts* 59 International Section A: Humanities and Social Sciences, 379 (1998).

²⁷J.O. Prochaska & W.F. Velicer, "The transtheoretical model of health behavior change" 12 *American Journal of Health Promotion: AJHP*, 38-48(1997).

²⁸ S. Michie, M.M. Van Stralen, et.al., "The Behaviour Change Wheel: A New Method for Characterising and Designing Behaviour Change Interventions" 6 *Implementation Science* 1-12 (2011).

²⁹K.S. Nielsen, S. Clayton, et.al., "How Psychology Can Help Limit Climate Change" 76 *American Psychologist* 130 (2021).



Relying solely on legal frameworks for environmental conservation is insufficient. The solution lies in integrating knowledge from various disciplines to develop innovative approaches. A fresh perspective grounded in robust theoretical and practical foundations is urgently needed to overcome enforcement and compliance challenges²³.

The paper seeks to merge ideas from the fields of law and psychology to propose solutions that leverage psychological principles to enhance the enforcement of environmental laws. The aim is to establish a psycho-legal framework to address environmental issues, particularly the lack of citizen engagement, which undermines the effectiveness of environmental legislation. Key psychological domains relevant to this approach include: individual behavior, societal behavior, mental health, and effective communication in legislation.

Understanding what motivates individual behavior (such as values, attitudes, beliefs, identities, and motives as discussed above) is crucial for designing effective legal mandates for environmental conservation. Concepts such as environmental identity, pro-environmental values, and ecological worldviews can inform precise and impactful lawmaking.

Insights into societal dynamics provide a foundation for theories that can drive public behavior modification and civic engagement. Social psychology offers valuable tools for understanding collective behavior and fostering community-driven environmental action.

Climate change has profound psychological impacts, with phenomena like eco-anxiety and climate distress gaining recognition. Vulnerable populations, especially those with pre-existing mental health conditions, are at greater risk. To address these challenges, mental health policies must integrate climate change considerations, emphasizing cross-sectoral and community-based efforts³⁰. Highlighting the link between environmental issues and psychological well-being can inspire greater citizen participation in conservation efforts.

Effective communication is critical at every stage of environmental legislation of formulation and implementation of the policies. Psychological insights can shape laws that resonate with behavioral drivers. Engaging stakeholders (citizens, organizations, and governments) through transparent communication can lead to policies that address core environmental issues. For instance, addressing the interconnected nature of behaviors, culture, technology, economy, and

²³Supra note 23

³⁰World Health Organization, "Mental Health and Climate Change: Policy Brief" (2022)



policy can help craft messages targeting behavior change clusters rather than isolated actions²⁹.

Clear, impactful communication is essential for executing and disseminating policies. Environmental education, awareness campaigns, and tailored communication strategies may enhance outreach. Incorporating feedback mechanisms further refines these efforts. Citizens' communication acts, such as sharing and seeking information, directly boost environmental participation^{29,30,31}.

The gap between law and behaviour can be attributed to factors such as lack of public awareness, inadequate enforcement mechanisms, and psychological resistance to change³⁴. While India has a robust set of environmental laws, including The Wildlife (Protection) Act, 1972, Air Act (1981), Water Act (1974), the Environment Protection Act (1986), etc., still the enforcement remains inconsistent.

The importance of the court in influencing India's environmental policy, holding polluters responsible, and making sure that progress doesn't come at the expense of environmental damage is highlighted by these rulings taken together. For striking a balance between ecological protection and economic progress, they act as guiding models.

6. Conclusion and Suggestions

The following observations and suggestions were made after the analysis:

- People tend to prefer maintaining their current habits over adopting new behaviours. This bias can make it difficult to encourage practices like recycling or reducing energy consumption³².
- Individuals often prioritize immediate rewards over long-term benefits. When the consequences of environmental harm (e.g., climate change) seem distant, people might not feel the urgency to comply with laws aimed at mitigating such issues.

²⁹Supra note 29

³⁰Supra note 30

³¹S.C. Moser, "Communicating Adaptation to Climate Change: A Review of the Literature on Barriers to Engagement" 20(4) *Global Environmental Change* 540-548 (2010).

³²O. Renn, T. Webler & P. Wiedemann, "Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse" *Fairness and Competence in Citizen Participation*, Springer (1995)



- Many people underestimate their susceptibility to environmental risks, which can lead to non-compliance with policies, such as ignoring waste disposal regulations³³.
- If compliance with environmental regulations (e.g., using reusable bags) is seen as a norm within a community, others are more likely to follow the same.

Integrating psychology into environmental law and policy provides valuable insights into human behaviour, which can help shape more effective and sustainable environmental regulations. By considering factors like cognitive biases, social norms, and motivational drivers, policymakers can design strategies that foster greater compliance, leading to better environmental outcomes.

Policies that leverage social approval or disapproval can encourage people to adopt environmentally friendly behaviours³⁴. Different cultures may prioritize environmental conservation to varying degrees. In societies where communal well-being is valued, policies that highlight collective environmental benefits might gain better compliance³⁵.

Risk perception, cognitive biases, social norms, place attachment, eco-anxiety, climate justice and moral values are to be addressed which modifying the behaviour patterns of communities towards environment. In the Indian context, these psychological aspects are further shaped by socio-economic disparities, educational levels, and other socio-demographics in line with environmental laws.

³³M. C. Nisbet & D. A. Scheufele, "What is Next for Science Communication? Promising Directions and Lingering Distractions" 96 *American Journal of Botany* (10), 1767-1778 (2009).

³⁴E. W. Maibach & A. Leiserowitz, "America's Global Warming Beliefs and Attitudes in 2004" 69 *Public Opinion Quarterly* (3), 416-432 (2005)

³⁵P. W. Schultz & L. Zelezny, "Values as Predictors of Environmental Attitudes: Evidence for Consistency Across 14 Countries" 30 *Journal of Cross-Cultural Psychology*, 30(4), 545-570 (1999).

RE-LOOKING AT THE ECONOMIC OFFENCES THROUGH THE LENS OF SUSTAINABLE DEVELOPMENT GOALS



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Abstract

Crime has been since time immemorial. In this global digital era, financial crimes have increased globally, which is gradually causing dent on the economy. Reducing corruption and bribery is an important Sustainable Development Goal including measures to combat all kinds of organized crime. Offences such as money laundering, fraud, etc. poses a major challenge to the sustainable development, as essential public resources are being diverted away from the public welfare schemes and developmental projects. Due to this, the ability of the state is hampered in effectively utilizing taxes and public finances towards achieving SDGs. This paper puts forth special focus on Goal 16 and the need for robust legal and regulatory framework to aid SDGs by ensuring that taxes are mobilized appropriately towards public welfare, promoting social and economic growth. Thereafter, this paper puts forth the role of International organizations like FATF and FIU towards monitoring financial transactions and emphasising towards critical norms like KYC, due diligence, which helps in preventing the flow of illegal funds. Furthermore, multifarious efforts are required, ensuring global cooperation, domestic legal reforms, enhanced oversight, to curb economic offences and promote sustainable development.

Keywords: Economic offences, SDGs, money laundering, tax, Goal 16, FATF, legal framework.

1. Introduction

Corruption is a global problem that jeopardizes financial system integrity,

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impairs economic stability, and affects good governance. This issue of corruption has become pertinent due to the increase in the illegal activities globally, as the funds generated from such activities are laundered to portray them as proceeds from legal activities. Offences such as terrorism, drug-trafficking, illegal trading, corruption; among others, harms the standing of the banks, financial institutions and countries thereby associated. They do so by the movement of money unlawfully across the nation and even globally. Criminals involved in such illegal activities, put multiple layers of transactions very tactfully in order to evade the detection of black money, thereby concealing the origin of the tainted proceeds of crime. Therefore, through the process of money laundering, criminals evade detection and earn profits from illegal activities. So, in other words, we can say that the process of money laundering is very crucial towards facilitating criminal activities at global stage.

The nations which are developing countries, are prone to more risk of money laundering activities. The reason being their nascent financial systems, lack of proper regulatory mechanisms and inefficient methodology for enforcement. Furthermore, developing countries, additionally, finds it difficult to handle activities pertaining to money laundering as they lack behind in terms of the resources and knowledge required to handle such complex problems. Criminals often have been seen taking advantage of the shortcomings in the laws and lack of proper monitoring, which makes it easier for them to flow the illegal money through borders. Furthermore, the developing countries become more vulnerable due to their political tension, bribery, corruption and nascent legal frameworks. This paper puts forth the measures taken by India to prevent money laundering by examining its regulatory and legal framework. It also mentions the learnings for India, by doing a comparative analysis of other developing countries such as Brazil, South Africa and Mexico. All of these countries, including India, have high risk score as per the latest 2024 ranking given by Basel.¹

India holds an important place in global financial map. This is because a country like India, has a significant position due to its growing market and being a global investment hub. However, this also attracts major challenges towards battling the issue of money laundering. Moreover, the risk increases even further due to the digital payment system, NBFCs and expanding network of banks. There have been multifarious efforts of India to combat with money

¹Basel Institute on Governance, Basel AML Index 2024, Ranking Money Laundering Risks Around the World? 33 (Dec, 2024).



laundering activities but they hindered because of many reasons. Majorly, weak enforcement and regulatory mechanism; and lack of cooperation amongst agencies impacted the efforts in effectively strengthening our anti-money laundering (AML) regime. However, due to the growing importance of India in global financial market, strong need is felt to bring forth effective methods to combat money laundering.

1.1 Economic offences and SDGs

The issue of money laundering has become most prominent in the international economy. It is an alarming situation for the banking infrastructure around the globe and for the nation's security. There are many financial crimes such as corruption, fraud, money laundering, etc.; when happening at a large scale, impacts the economies. People tend to loose trust in institutions. It impacts the development of a nation as resources are diverted from necessary projects because of such crimes. The developing nations take major toll of economic offences due to their limited regulatory capability and nascent financial system.

SDG 16 lays an emphasis upon the significance of combating corruption and bribery for sustainable development of a nation. A fast growing economy like India faces major risks in its financial sector. The law to address such issues came in the year 2002 called as the Prevention of Money Laundering Act, 2002 (PMLA). Although, India still struggles with the enforcement, despite having amendments and other regulations. This is due to lacunas in regulatory mechanism, poor inter-agency cooperation and shortage of resources. Stringent measures are required to aim ensure good governance and economic stability.

2. Global Challenge of Money Laundering

The offence of money laundering being global in nature, affects the economies gradually. It causes concern towards security as it facilitates unlawful activities and disrupts governance. Moreover, by money laundering, resources are wasted on illegal activities, thereby impacting sustainable development. There is exploitation of the connected global financial system through money laundering activities. Criminals earn profits from illegal activities. They convert black money into white, through the process of money laundering. They do so by the movement of money unlawfully across the nation and even globally. Criminals involved in such illegal activities, put multiple layers of transactions very tactfully in order to evade the detection of black money, thereby concealing the origin of the tainted proceeds of crime. Therefore, through the



process of money laundering, criminals evade detection and earn profits from illegal activities.²

2.1 Money Laundering and SDGs

Money laundering is a significant threat to a nation's economic integrity and its development, both domestically and globally. It is interlinked with Goal 16 of the Sustainable Development Goals (SDGs), which emphasizes peace, justice, and strong institutions. Goal 16 targets towards the reduction in illegitimate financial and arms flows, strengthening the recovery and return of stolen assets, and combating organized crime by 2030. However, illegal activities like smuggling drugs, human trafficking, and terrorism contribute to increased money laundering, eroding the country's economic fabric. Additionally, Target 16.5 emphasizes reducing corruption and bribery, which are inherently linked to money laundering, fueling systemic corruption and posing a threat to holistic development. To achieve these targets, a comprehensive approach addressing the multi-dimensional nature of financial crimes is needed. Accountability and transparency³ are crucial for building effective infrastructure and robust anti-money laundering frameworks.

2.2 Money Laundering and Globalisation

Globalisation has led to increased transnational financial transactions, creating opportunities for criminals to exploit financial system loopholes. There are two major issues which facilitates money laundering globally. Firstly, differences in the law and enforcement mechanisms. Secondly, poor cooperation between nations. Therefore, money laundering being a global offence, cannot be curtailed by a nation alone. It requires joint efforts internationally to curb this crime. The participation of all nations in global financial network, is required to strengthen AML policies and have proper measures, thereby to prevent money laundering activities effectively.⁴

3. India AML framework: Legal & Regulatory Background

In India, over the period of time, we have seen the development of AML policies. Such measures have shown the significant position of India in global

²UN Office on Drugs and Crime, "Global Programme Against Money Laundering and the Financing of Terrorism: The United Nations Response" (Oct, 2024).

³UN, Department of Economic and Social Affairs, "Sustainable Development Goals, Target 16.6" (September, 2024).

⁴*Supra* note 2.



economy and its relevance towards financial crimes. India, being the fastest growing economy in the world, is at increased risk of money laundering, thereby, calling for a strong regulatory framework and stringent laws to combat this threat.⁵ The groundwork of India's AML has been established through numerous legislations, reforms, and institutional development focusing at prevention, detection and prosecution of money laundering activities. Regardless of these measures, India's AML mechanism is not efficient to address the challenges pertaining to the enforcement of laws, systemic gaps, and advance technologies.⁶

3.1 Legal background of India's AML framework

The foundation for the AML framework in India has been laid down by the Prevention of Money Laundering Act, 2002 (PMLA) due to the international obligations. India's international commitments stem from its membership in organizations such as the Financial Action Task Force (FATF) and other worldwide initiatives to combat money laundering and terrorist funding. The align India's legal framework with these global initiatives, PMLA was enacted, to address growing concerns about illicit gains, financial crimes, especially money laundering.

The PMLA criminalizes money laundering in India by imposing penalties on individuals who conceal or disguise the source of income from illicit operations. The act's main provisions include the seizure of property obtained from illicit proceeds, the attachment of assets implicated in money laundering, and the prosecution of persons and corporations involved in such operations. The PMLA also introduced reporting rules for financial institutions, mandating that banks, financial intermediaries, and other entities should report the transactions of suspicious nature to the "Financial Intelligence Unit-India". The PMLA has been amended multiple times to increase its scope and effectiveness. Significant modifications in 2005, 2009, and 2012 have been made. Efforts were made to broaden the definition of money laundering, increase law enforcement agencies' jurisdiction, and facilitate the confiscation of criminal proceeds. These modifications not only made India's AML regulations more comprehensive, but also brought them in line with the global benchmark set

⁵Sudipta Mohanty & Arpita Das, "Anti-Money Laundering Regulations in the Digital Era: An Indian Perspective", 12 *Financial Law Review* 65 (2023).

⁶Rakesh Kumar and Deepak Agarwal, "Legal and Regulatory Challenges in Strengthening Anti-Money Laundering Laws in India", 18 *Journal of Law and Governance* 102 (2022).



by the FATF's 40 Recommendations.

Further, apart from the PMLA, there are other statutes also which deals with corruption,⁷ illegal gains, confiscation of property, absconder, etc. They are more general in nature but complements PMLA subject to the facts being financial in nature. Others statutes are Prevention of Corruption Act, 1984, Whistleblower Protection Act, 2011 Fugitive Economic Offenders Act, 2018 and many more related to tax, customs, trade, etc.

3.2 Regulatory Framework

The regulatory framework pertaining to AML is mainly governed by the RBI (Reserve Bank of India).⁸ RBI imposes certain stringent requirements on the financial institutions such as, in the recent past, "Know Your Customer" norms for knowing their customers and also Due Diligence procedures for Customers ("Customer Due Diligence, CDD").⁹ The object of introducing such measures are to prevent fraudsters from laundering money using financial institutions as a means. These measures ensures proper identification and verification of the customer's identities, which in-turn helps in monitoring any activity with suspicious transactions.

The identification of the customer is of utmost importance to keep track of paper trail. KYC and CDD norms are essential components of Anti-Money Laundering framework, as it makes it obligatory for the banking and financial institutions to conduct thorough background checks on customers, as a pre-requisite for opening bank account or for certain financial transactions. These norms entails obtaining certain type of information related to customer's identity, their occupation, and most important; the source of funds. These norms pertaining to KYC are required to be done on a periodical basis, ensuring regular checks; and to do monitoring of the transactions to catch any irregularity which could indicate money laundering.

The RBI has issued various circulars and guidelines requiring banks and

⁷Madhavan Nair & Vimal Pillai, "Corruption and Money Laundering in India: A Legal and Regulatory Perspective", 60 *International Journal of Law, Crime and Justice* 154 (2022).

⁸Reserve Bank of India, "Know Your Customer (KYC) Guidelines- Anti Money Laundering Standards- Prevention of Money Laundering Act, 2002- Obligations of NBFCs" (July, 2023).

⁹Reserve Bank of India, "Master Direction- Know Your Customer (KYC) Direction" (Feb, 2016).



the financial institutions to take a risk-based approach to KYC and CDD. This strategy demands institutions to analyze the risks of financial crime related with various consumers, goods, and services and allocate resources accordingly. “High-risk clients”, such as “politically exposed individuals” (PEPs), and transactions involving jurisdictions with high risks have more due diligence requirements, including more regular monitoring and reporting.

4. Challenges in AML policies in India

India has been progressing in putting various efforts towards building a strong Anti-Money Laundering (AML) framework, but despite all the efforts, it faces numerous challenges in effective enforcement and prosecution of money laundering offence.¹⁰ As the government deals with increasing financial crimes, the AML regime faces enforcement challenges, technological limitations, resource restrictions, and geopolitical pressures. These difficulties jeopardize the effectiveness of India’s financial system and its adherence to global standards, endangering both national security and economic stability.

The challenges for the implementation of Anti-Money Laundering laws in India are:

- *Enforcement & Prosecution*
- *Resource Constraints*
- *Technological integration*
- *Global Challenges (International Cooperation & Compliance with global standards)*
- *Corruption and Political Influence*

4.1 Enforcement & Prosecution

One of the most pressing issues confronting India’s AML framework is the efficient implementation of its legislation and the successful prosecution of money laundering cases. While the Prevention of Money Laundering Act? (PMLA) of 2002 establishes the legislative framework for addressing financial crimes, executing these rules has proven challenging. Law enforcement authorities in India, for money laundering matters, being “Enforcement Directorate” of India (ED) and for anti-corruption & economic offences being the

¹⁰Prabhjit Singh & Anurag Prasad, “Challenges in Implementing Anti-Money Laundering Frameworks in Developing Economies: A Case Study of India”, 30 *Journal of Financial Crime* 218 (2023).



“Central Bureau of Investigation” (CBI), face numerous challenges, including the complexities of researching sophisticated laundering schemes, a lack of agency collaboration, and lengthy legal processes.¹¹

Tracking illegal money transfers is extremely challenging in India’s massive informal sector, which is dominated by cash transactions. Criminals regularly employ shell businesses, property related transactions, and trade-based money laundering methods to conceal illicit funds, hampering authorities’ ability to locate and prosecute criminals. Furthermore, law enforcement is frequently hampered by obsolete investigation techniques, legal uncertainties, and the slow speed of the Indian judicial system, all of which contribute to poor conviction rates for money laundering crimes. Prolonged judicial processes, along with the complexities of financial crimes, have resulted in delayed justice, allowing many culprits to avoid serious repercussions.¹²

4.2 Resource Constraints

Another important difficulty in India’s AML regime is a lack of resources available to enforcement organizations. Both the ED and the FIU-IND are understaffed, with insufficient people and technology equipment to handle the huge volume of money laundering operations. Given the amount of financial transactions in India and the growing complexity of financial crimes, the current personnel and investigative capability are insufficient to detect and address suspicious activity in a timely manner.

Financial institutions are also facing resource restrictions as they implement stringent “Know Your Customer” and “Customer Due Diligence” policies. Many smaller banks and financial institutions lack the capacity to maintain comprehensive AML compliance programs, resulting in inconsistency in reporting suspicious activity. As a result, high-risk sectors such as real estate, gold trade, and informal financial networks like hawala are frequently under-monitored, making it easier for illegal cash to slip through the cracks.

4.3 Technological integration

This is one of the emerging challenge due to the advancement of technological in the recent past. With an increasing digitization of India’s economy, incorporating technology into the AML framework brings both potential and new challenges. On the one hand, advances in “Artificial Intelligence” (AI), data

¹¹Financial Intelligence Unit- India, “Annual Report FY 2022-2023” (2024).

¹²*Id.*



analytics and machine learning, can help spot suspicious transactions and improve the effectiveness of AML enforcement. On the other hand, cybercriminals and money launderers are increasingly using new technology, such as cryptocurrency and digital payment systems, to hide the trail of illicit assets.¹³

Cryptocurrencies, in addition, have become a major issue for authorities since they operate outside of regular financial institutions, making it more difficult to trace transactions. While India has taken attempts to regulate cryptocurrency use, the country does not have an adequate structure to regulate digital currencies with regard to anti-money laundering legislation. The government's dilemma over whether to legalize or ban cryptocurrency hinders police operations.¹⁴ Furthermore, the banking sector have been hesitant to embrace updated technical methods for detecting and preventing money laundering, leaving gaps in monitoring new and developing dangers.¹⁵

India's AML framework must respond fast to the difficulties brought by fintech developments, virtual currencies, and electronic payment systems. Without adequate implementation of these technology tools, India risks slipping short in its ability to combat sophisticated money laundering schemes.

4.4 Global Challenges (International Cooperation & Compliance with global standards)

India's integration into the worldwide financial system presents issues that necessitate a high level of international cooperation and conformity with global standards. Being one of the member of the "Financial Action Task Force" (FATF), India has to adhere to international AML norms that require the government to enact strong policies, maintain openness in financial transactions, and collaborate with other countries in cross-border investigations.

However, international collaboration¹⁶ in anti-money laundering enforcement remains a challenging issue for India. Despite being a member of the "*Egmont Group of Financial Intelligence Units*" and having bilateral agreement for joint legal assistance with several countries, India has difficulty

¹³Pankaj Rajput & Shreya Khanna, "The Role of Technology in Enhancing AML Mechanisms in Emerging Markets", 14 *Journal of Economics & Financial Studies* 88 (2023).

¹⁴PRS Legislative Research- Institute for Policy Research Studies, "Committee Report Summary- Virtual Currencies in India" (July, 2019).

¹⁵Sandeep Deshmukh, "The Impact of Cryptocurrencies on India's Anti-Money Laundering Framework", 42 *Journal of Financial Crime* 167 (2021).

¹⁶Asian Development Bank, "Enhancing Anti-Money Laundering Efforts in Asia-Pacific: A Roadmap for Regional Cooperation" (2022).



obtaining timely and comprehensive information from jurisdictions with weaker anti-money laundering frameworks or political barriers. Investigations into transnational money laundering cases, which frequently include numerous nations, can be slow and time-consuming due to disparities in legal systems, regulatory frameworks, and privacy regulations.¹⁷

Compliance with FATF standards poses additional challenges for India. Although the country has made strides toward aligning its legal structure with FATF recommendations, the 2021 FATF Mutual Evaluation Report identified vulnerabilities in India's enforcement and regulatory system. For example, there are ongoing worries regarding the efficiency of India's oversight of non-financial industries such as real estate, and lack of transparency in beneficial ownership information for businesses. Failure to fully comply with FATF rules may cause reputational harm and limit India's access to global financial markets, potentially leading to punitive sanctions.

4.5 Corruption and Political Influence

Corruption and political influence are two of the most pernicious threats to AML enforcement in India. While India has established several regulatory agencies and legislative frameworks to prevent money laundering, their efficiency is frequently hampered by corruption in law enforcement, financial institutions, and even the judiciary. Corruption enables criminals to exploit loopholes, elude regulatory scrutiny, and avoid prosecution.¹⁸

The AML enforcement becomes difficult due to political involvement in high profile cases. Investigation of these cases, against PEPs (politically exposed persons) such as politicians, industrialists, bureaucrats are often, stalled due to politics. Better due diligence is required in such situation to improve AML regime.¹⁹ Corruption impacts lawful conduct of investigation as the powerful people interfere with the investigation to move forward.

To cater such problems, focus should be towards strengthening law enforcement by giving it more autonomy, ensuring proper supervision and having better transparency in judicial process. Efforts should be made to minimize political interference in order to have effective and impartial AML

¹⁷*Infra* note 27.

¹⁸Transparency International, Corruption Perception Index- 2021: India, available at: <https://www.transparency.org/en/cpi/2021/index/nzl> (last visited on December 10, 2024).

¹⁹ Nandini Rao, "Political Influence and AML Enforcement in India: The Case of Politically Exposed Persons", 39 *South Asia Journal of Political Studies* 134 (2021).



framework.

5. Comparative Analysis with Other Developing Countries

The offence of money laundering being global in nature, impacts all economies, but takes a greater toll on the developing countries due to weak financial & regulatory system. So, a comparative analysis of the AML regime of similar nations having nascent financial system, inadequate regulatory and law enforcement mechanism, would provide a better insight on this issue for India.²⁰

Developing countries like South Africa, Brazil and Mexico also faces the issue of money laundering. They also have been subjected to financial crimes such as corruption, drug-trafficking, illegal trading, etc., over a long period of time. Here, we are doing a comparison of AML framework of these developing countries, with that of India in order to better understand the nuances of crime and legal mechanism involved therein. These countries usually encounters problems of same nature due to certain factors which are found common amongst all developing nations. All of these nations, have similar financial system, which is relatively new as compared to the developed nations. Here, by analyzing measures adopted by these nations, we aim to gather some takeaways which could be beneficial for India, in order to combat with similar problem of money laundering activities. Also, we can see the various shortcomings, which can be avoided while addressing such issues in the future.

5.1 Brazil

A country like Brazil has a struggle with “organised crime” and corruption over a period of time, making it a prime target for money laundering operations. The country’s broad economy, including an informal sector and strong international commerce links, makes it a prime target. The government has made significant efforts to enhance its anti-money laundering system, but major obstacles remain in enforcement and interagency collaboration. Law No. 9,613 of 1998 establishes the “Council for Financial Activities Control” (COAF), a financial intelligence unit, but political meddling and corruption within courts and law enforcement agencies hinder Brazil’s efficiency in countering money laundering.²¹

Brazil faces challenges in anti-money laundering efforts due to the prevalence of organized crime, particularly drug trafficking networks exploiting the country’s banking system. Brazil’s criminal networks are larger and more

²⁰Arijit Chakrabarti & Biswajit Sen, “Impact of International AML Standards on Developing Economies: A Focus on India and Brazil”, 11 *Global Policy Review* 178 (2022).

²¹Brazil’s Financial Intelligence Unit, “Annual Report” (2021).



complicated, making law enforcement more difficult. Brazil has struggled to implement technical tools and risk-based techniques, while India has effectively integrated them into its AML framework. However, Brazil's collaboration with international organizations like the FATF and GAFILAT (Group of Latin American Financial Intelligence Units) has enhanced its anti-money laundering capabilities, leading to the adoption of important recommendations and the establishment of a strong legislative foundation with the Prevention of Money Laundering Act.²²

5.2 South Africa

In South Africa, they are battling high risk jurisdictions and informal economies in the AML framework. Major financial hub in South Africa is heavily influenced by its exposure to high-risk jurisdictions nearby and having a large informal economy. South Africa, similar to India, finds it challenging to integrate the existing formal and informal financial systems to prevent money laundering. Moreover, the unique geopolitical context of South Africa, especially its proximity to political instable regions, put forwards specific challenges for its AML system.

South Africa's Financial Intelligence Centre Act (FICA) 2001 mandates financial institutions to report suspicious transactions and impose KYC and CDD norms. However, implementation has been uneven, especially in industries like real estate and casinos. South Africa's main concern is the proliferation of "trade-based money laundering" (TBML), which involves manipulating business invoices and customs papers to launder illegal proceeds. This is a concern in other developing nations, like India, where TBML is aided by international commercial transactions and cross-border activity difficulties. South Africa's reliance on foreign commerce and position as a gateway to African markets make it particularly vulnerable to TBML scams. Compared to India, South Africa struggles with the regulation of politically exposed individuals due to high levels of political corruption and state control. South Africa's cooperation with international organizations like the FATF and the *Eastern and Southern Africa Anti-Money Laundering Group* (ESAAMLG) has strengthened its AML framework.²³

5.3 Mexico

Mexico is highly impacted by the informal financial system and most striking

²²Daniel A. Braga Netto, "Brazil's Evolving Anti-Money Laundering Regime: Addressing Gaps and Enhancing Enforcement", 53 *The International Lawyer* 83 (2020).

²³Financial Action Task Force, "Anti-Money Laundering and Counter-Terrorist Financing Measures- South Africa: Fourth Round Mutual Evaluation Report" (2021).



drug cartel. The money laundering scenario in Mexico is closely related to the powerful drug cartels running in the country. These drug cartels, in the process to hide the illegal origin of funds, have been using the financial system to launder proceeds from such illicit activities. These cartels take advantage of the informal financial system, as it becomes difficult for the authority to trace the origin of funds and thereby complicates the steps to monitor and regulate financial transactions. Similar to India and Brazil, the informal economy is a big hurdle to prevent money laundering in Mexico. However, Mexico's geographical closeness to the United States, as well as its significance as a key transit nation for narcotics bound for the American market, set it as a distinctive case globally in the fight against money laundering.

The Mexican government's anti-money laundering (AML) system, based on the *Ley Federal para la Prevención e Identificación de Operaciones con Recursos Ilícitos* ("Ley Federal de Prevención e Identificación de Operaciones con Recursos Ilícitos") (Federal Law on the Prevention and Identification of Operations Using Illicit Resources) [LFPIORPI], 2013, faces challenges in tracking money laundering linked to drugs due to cartels' vast financial networks and unofficial financial channels. Mexico has improved its AML efforts through collaboration with the US and other nations through the "Egmont Group of Financial Intelligence Units." India has also benefited from its international alliances, particularly its participation in the Asia/Pacific Group on Money Laundering (APG) and the Financial Action Task Force (FATF). However, corruption in the judiciary and law enforcement hinders prosecution of money laundering cases, and concerns about the independence and resources of the Financial Crimes Unit (FIU). The Government of Mexico has established the Financial Intelligence Unit (UIF), a more autonomous and well-resourced unit, but faces difficulties in keeping up with the growing complexity of financial crimes.²⁴

5.4 Common Challenges & Learning for India

India can enhance its AML framework by learning from the money laundering experiences of South Africa, Mexico, and Brazil, despite their unique political, economic, and criminal networks challenges, as they share similarities. The learnings are:

- *Strengthen Enforcement Capabilities*
- *Addressing Informal Economies*

²⁴Javier Treviño, "Money Laundering in Mexico: An Institutional and Legal Framework Analysis", 12 *Journal of Money Laundering Control* 205 (2009).



- *Enhancing International Cooperation*
 - *Combating Corruption and Political Interference*
- a) *Strengthen Enforcement Capabilities*: Effective AML regulatory enforcement is one of the main issues facing all four of these nations. Law enforcement agencies in poor nations frequently find it difficult to look into and prosecute money laundering cases because of a variety of factors, including a lack of resources, corruption, and the complexity of financial crimes.²⁵ By increasing interagency collaboration, investing in law enforcement officer training, and implementing cutting-edge technology to identify and look into financial crimes, India can benefit from what Brazil and Mexico have learned.
- b) *Addressing Informal Economies*: The informal economy is a key issue for AML operations in underdeveloped nations, as it permits money launderers to shift cash outside the gaze of regulatory authorities. The challenges with informal finance in South Africa and Mexico serve as a reminder of how crucial it is to incorporate these activities into the official financial system. India's push for digital payments and the demonetization attempt in 2016 were steps in this direction, but more needs to be done to bring the informal sector under regulatory scrutiny.²⁶
- c) *Enhancing International Cooperation*: The nature of money laundering "is transnational, and successful AML regime" necessitate close international cooperation. All four countries have benefited from their participation in international organizations such as the FATF and regional agencies, but more may be done to strengthen information sharing and collaborative investigations. India should continue to deepen its foreign partnerships and seek deeper collaboration with countries facing similar issues, such as Brazil and Mexico.²⁷
- d) *Combating Corruption and Political Interference*: Corruption is a significant barrier to effective AML enforcement in underdeveloped nations. Brazil, South Africa, and Mexico have all struggled with high

²⁵Gurjot Bhatia, "Recent Developments in India's Anti-Money Laundering Laws: Challenges and Opportunities", 58 *Indian Journal of International Law* 118 (2022).

²⁶ IMF: Legal Department, "Review of The Fund's Anti-Money Laundering and Combating The Financing of Terrorism Strategy: IMF Policy Papers", 052 (Dec, 2024).

²⁷Organisation for Economic Co-operation and Development, "The Role of International Cooperation in Combatting Money Laundering: A Policy Framework for Developing Countries" (2023).



levels of corruption, undermining the credibility of their anti-money laundering efforts. While India has made substantial headway in combating corruption, particularly via the development of organizations such as the Central Vigilance Commission (CVC) and the Lokpal, more must be done to ensure that AML enforcement is not influenced by political considerations.

By learning from the experiences of other developing nations and implementing best practices, India can continue to strengthen its AML framework and create a more robust financial system capable of withstanding the growing threat of money laundering.

6. Conclusion

The AML regime of India plays a significant role in battling economic offences. It also becomes essential in achieving the SGD 16 by attempting to eradicate corruption. But, the AML regime, gets affected in the implementation process because of the emerging complex financial crimes. There are many hindrances which are faced by agencies, and more specifically enforcement agency. Their investigation gets effected due to lack of proper resources, skilled persons, advanced technology and updated tools of investigation. Furthermore, India is being subjected to more challenges at international front as there is lack of cooperation and collaboration resulting in the weak regulatory system and dearth of partnership at global level. These issues aggravates more due to the involvement of political interference and systemic corruption, resulting in lack of public trust in the system. Therefore, India requires strong efforts towards addressing these issues and work in making strong AML structure. It would be possible if we prioritize investment in the right direction such as modern infrastructure, innovative technology, strong and transparent judicial framework. Also, we need to develop strong cooperation with nations internationally, to move ahead in eradication money laundering. For the sustainable development of the nation, we need autonomous and politically neutral law enforcement agencies, to better combat with money laundering offences and thereby promoting peace and justice.

AN ANALYSIS OF THIRD PARTY FUNDING IN INTERNATIONAL COMMERCIAL ARBITRATION IN INDIA



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Abstract

In a number of different jurisdictions, the landscape of arbitration includes the participation of third-party funding. In India, there has been a discernible rise in the amount of funding activity over the past several years; while this trend first concentrated on investor–state arbitration, it now appears to be expanding to commercial international arbitration. The concept of third-party funding is currently the most contentious subject in international commercial arbitration, and it is expanding at the fastest rate. In the context of an arbitration, the term “third party funding” refers to the practice of a non-party to the dispute, known as a “third-party funder,” providing funding for all or a portion of the arbitration costs to one of the parties in exchange for a percentage of the amount recovered as previously agreed upon. In this article, the researcher explores how the third party funding in arbitration achieves SDG-16 as it helps the parties, who cannot afford arbitration cost, by financing them to access justice and ensure equitable dispute resolution process and promote Rule of Law. The researcher explores the status of Third Party Funding in different countries like USA, UK, Singapore etc. and also analyse its applicability in India.

Key Words – Arbitration, Third Party, Funding, Commercial, International, Policy

Introduction

Despite the fact that one of the advantages of arbitration is that it is more cost effective than litigation, there is mounting evidence that both domestic and international arbitration are becoming increasingly expensive. Arbitration and litigation are both problematic options for many parties as a means of resolving their issue because of the various expenses associated with them.

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These charges include lawyer fees, arbitrators' fees, attendant costs, venue costs, and other regular and occasional expenses.

The fundamental idea behind third-party funding, also known as litigation financing, is that third-party funders will provide financial support for a legal proceeding or arbitration in exchange for a portion of the monetary award that will be granted to the claimant or counter-claimant, if the proceeding or arbitration is successful. The improvement of access to justice for parties who otherwise would not approach a judicial forum for their disputes is a benefit of third-party funding that is frequently stated as a benefit of this type of funding.¹

A working definition of third-party funding in international arbitration is provided by the ICCA-QMUL Task Force on Third-Party Funding in International Arbitration, and it is as follows:

“An agreement by an entity that is not a party to the dispute to provide a party, an affiliate of that party or a law firm representing that party,

a) funds or other material support in order to finance part or all of the cost of the proceedings, either individually or as part of a specific range of cases, and

b) such support or financing is either provided in exchange for remuneration or reimbursement that is wholly or partially dependent on the outcome of the dispute, or provided through a grant or in return for a premium payment”²

In both litigation and arbitration, third-party funding is a fast-expanding concept. When used appropriately, third-party funding can benefit both parties and society as a whole since it helps to level the playing field and promotes access to justice.

Global Status of Third Party Funding In International Arbitration:-

In recent years third party funding in international arbitration has been on the rise because of the increasing complexity and cost of international arbitration. In the present scenario a positive development for the parties seeking to peruse complex and expensive claim is the reason for the development of

¹Alternative dispute resolution: Why it doesn't work and why it does. (1994, May 1). Harvard Business Review. <https://hbr.org/1994/05/alternative-dispute-resolution-why-it-doesnt-work-and-why-it-does>

²Xin Sherry Chen & Kirrin Hough, NYU LAW, May 2019



third party funding. There are so many issues and challenges like enforcement issues, lack of uniformity in arbitration law, transparency, conflict of interests etc. also effects with concept globally.³

The English legal theories of maintenance and champerty forbid third parties from providing financial support for a non-related party's litigation. The principles of maintenance and champerty have historically precluded third parties from supporting an unrelated party's litigation in a number of jurisdictions. In 2006 the judiciary relaxed the rules in Australia and after that it spread rapidly in the UK, USA, Singapore, Europe, Africa, Latin America and China.⁴

Prohibitions against champerty and maintenance were strictly enforced in modern times since they were deemed to be matters of public policy. It would appear that the disadvantages of third-party funding, such as the funders' control in proceedings, the compromise of anonymity, and the restricted probability of settlements, continue to lend support to the English champerty and maintenance provisions.

The archaic common law ideas of maintenance and champerty rendered it illegal for any person or organization to provide financial support for a legal procedure in which they had no personal stake. This prohibition applied to both individuals and organizations. The archaic bars of maintenance and champerty have been done away with. The Criminal Law Act of 1967, which was passed in England and Wales, marked the beginning of the process that would lead to the modification of these antiquated principles. Gradually The archaic prohibitions against maintenance and champerty were removed from the Criminal Law Act of 1967, which was enacted in England and Wales. This act also made it possible for other parties to provide financial support. Both the Association of Litigation Funders and the voluntary Code of Conduct for Litigation Funders were finalized in the year 2011, making it the first year for both organizations. This piece of regulation has been recognized as a guiding tool, despite the fact that it is an informal one (owing to the fact that its adoption is voluntary). The goal of this acceptance is to more effectively facilitate funding from third parties.⁵

In the USA, TPF is a well-established industry because the legal system in USA has contingency fee arrangement , the lawyers take a percentage

³Xiyue Li Beejing Law Review, Volume 15, No. 1 March 2024

⁴Researching Third-Party Funding in Investor-State Dispute Settlement, Xin (Sherry) Chen, March /April 2024

⁵Funding litigation – the good, the bad and the ugly. (0001, January 1). Fieldfisher. <https://www.fieldfisher.com/en/insights/funding-litigation-the-good-the-bad-and-the-ugly>



of the settlement or judgement. This is the reason for the acceptance of TPF. The courts validate the TPF agreements if they are not contradictory to public policies or ethical standards. One of the key factor of its success in USA is the presence of legal infrastructure as well as specialized litigation financial companies.⁶

However, Australia's legal system did not get its big break in the recognition of third-party funding until its relatively recent judgement in ***Campbells Cash & Carry case***⁷, wherein the High Court of Australia had established the notion that lawsuit funding in and of itself does not constitute an abuse of process or a violation of public policy, and wherein the doctrines of maintenance and champerty were held to be without relevance to the case. In Australia, the obligation in maintenance or champerty was eliminated by the Wrongs Act, which was passed in 1958.

Singapore has emerged as a key jurisdiction for TPF in international arbitration as the legal framework has been drafted carefully to balance the interest of finders, litigants and at the same time integrity of the judicial process.

However, the constraints of maintenance and champerty are still relevant for state litigation and arbitrations that take place within the territory of Singapore. [Champerty and maintenance restrictions] In 2017, Singapore approved the Civil Law Amendment Act, which eliminated the limitation of third-party funding for International Arbitrations and its connected court processes. This was accomplished by changing the name of the Act to the Civil Law Amendment Act.

The rules of Singapore International Arbitration Centre investment arbitration rules 2023 allow the tribunal to consider third party funding arrangement while awarding costs, and also emphasized the disclosure of information related to the third party funding to ensure transparency and fairness in the proceedings.⁸ The Singapore Courts have taken a proactive stance in addressing potential ethical concerns associated with TPF.

Applicability of Third-Party Funding in India

In India, there has never been a statute or an express bar that expressly prohibits third-party funding arrangements. This is despite the fact that other

⁶Sushant Mahajan , Indian Business Law Journal ,2024

⁷Campbells Cash & Carry Pty Ltd vs. Fostif Pty Ltd (2006) 229 CLR 386

⁸Xiyue Li Beijing Law Review Vol 15 No1 2024



countries have laws against champerty and maintenance. In point of fact, the statutory recognition of third-party funding agreements for civil cases may be found in certain state revisions (namely Maharashtra, Gujarat, Madhya Pradesh, and Uttar Pradesh) to Order XXV Rules 1 and 3 of the Code of Civil Procedure, which was enacted in 1908.

It has been demonstrated that the presence of these agreements invites judicial scrutiny in accordance with the principles outlined in the Indian Contract Act of 1872. This is the case despite the fact that the nature of these agreements does not automatically render them null and void from the start (unless they were paid by a lawyer). As a direct result of this, such agreements have frequently been restricted on the grounds that they are “unconscionable,” “unfair,” or for other reasons that are analogous to these concerns on public policy. This occurs when it seems as though the agreements were not made for a valid purpose but rather for the purpose of gambling in the litigation, or of injuring or oppressing others by abetting and encouraging unrighteous claims. In other words, it appears as though the agreements were made for the wrong reasons.

In spite of what was stated above, the Honourable Supreme Court of India has also made it abundantly clear on several occasions that the stringent English notions of champerty and maintenance do not apply in India. This is something that has been done multiple times. This is communicated in a manner that is crystal clear and without equivocation. It has also been made abundantly plain that there is nothing inherently immoral about such a transaction; there is nothing that should shock the conscience, and there is nothing that goes against public policy or public morals; the only exception to this is when a legal practitioner is involved. On the other hand, each agreement needs to be analysed on its own to make certain that it does not in fact contain the goal of going against public policy or public morals.⁹

In one case, the Rajasthan High Court looked at the fairness of such agreements and decided that they cannot be upheld if they were made with the goal of gambling in court and making big money. One case they looked at was this one. In this case, the High Court did not agree with the transfer of half of the property to the funder in exchange for the funder paying some of the legal fees. It was decided that giving the donor such a hugely disproportionate return was against the law, so the agreement was thrown out.

⁹Judicial decisions. (2010, August 12). Taylor & Francis. <https://www.tandfonline.com/doi/abs/10.1080/03050718.1996.9986455?journalCode=rclb20>



Based on what the Indian courts have said, it may not be completely wrong to say that the amount of the share to which the funder is entitled is one of the most important factors in deciding whether a financing agreement is legal or not. Indian courts may also look at other parts of the agreement, such as the role, rights, and responsibilities of the litigant and the funder in a funded proceeding, the disclosure of confidential information to the funder, the funders' say in evaluating settlement proposals by courts or opponents, the termination of the agreement and the conditions that must be met, the funders' liability for accrued obligations, etc. Among these clauses are: Putting private information in front of the funder Giving the funder confidential information Fund Even if one party is paying for the lawsuit, this way of thinking says that the plaintiff shouldn't have to pay for the interests of other people.

It's important to know that whenever a case is brought before a court or tribunal, the existence of such agreements must always be made clear. This is done to make sure that no bad orders are given during the execution or enforcement stage. For instance, when a funder is involved in the arbitration process, it matters how independent the arbitrators are from the funders. If this independence isn't set up, it can be a strong reason to challenge an arbitral decision, but only if it's done before the arbitration process starts.

In India, there are no restrictions that prevent third-party investment from entering the commercial market, hence there is no regulatory barrier to entry. As long as the arrangements for third-party funding do not contradict public policy or are illegal in any other way, India should manage third-party money by following the many systems that leading arbitration countries have created. The following are some of the findings that were presented in the report of the High-Level Committee to Review the Institutionalization of Arbitration Mechanisms in India:

“The enactment of supporting legislation has contributed significantly towards the growth of these jurisdictions as arbitration hubs. For instance, Singapore has recently passed amendments to its Civil Law Act legalising third party funding for arbitration and associated proceedings. Similarly, Hong Kong recently legalised third party funding for arbitrations and mediations. The Paris Bar Council has also indicated its support for third party funding.”

India's acceptance of international arbitration could be bolstered by the adoption of appropriate Indian-specific adjustments to comparative metrics.



Judicial Approach towards Third Party Funding In India:-

As there was no law in India related to Third Party Funding, the judiciary regulated it. It was in the case of *Ram Coomar Condoo v. Chunder Canto Mukherjee*¹⁰ the Privy Council lowered the bar for champertous agreements to be invalidated by the public policy concept in common law and found that such agreements could be invalidated by Indian public policy if they were inalienably discriminatory, unsuitable, and not created with the intention of fraudulently supporting a claim. In other words, the Privy Council found that certain agreements could be invalidated by Indian public policy.

However, the same view was trailed out by the Privy Council in the case of *Raja Rai Bhagawat Dayal Singh v. Debi Dayal Sahu*¹¹, where it was very much clear the law of maintenance which evolved from the English law and the doctrine of champerty was not applicable in Indian laws.

Moving on when the Supreme Court was established in India a case was referred in *B Sunitha v. State of Telangana*¹² in which the ruling of Mr. 'G, A Senior Advocate,' was cited by the Supreme Court of India where the court held that the legal agreements based on contingency fees are banned in areas where an advocate is a party.

In *Spentex Industries Ltd v Quinn Emanuel Urquhart & Sullivan*¹³ due to the fact that their governing agreement was not dependent on Indian law, the Delhi High Court did not investigate the question of whether or not the law relative to the contingency fee charged by Quinn Emmanuel was legal under the law of India.

Rule 2 (share or interest in an actionable claim), Rule 18 (fomenting litigation), Rule 20 (contingency fees), and Rule 22 of the Bar Council of India Rules make it abundantly clear that Indian advocates are unable to fund the litigation of their clients. This conclusion can be drawn from the rules of the Bar Council of India (participating in bids in execution, etc.). Reaffirmation of non-lawyer third-party funding admissibility and recovery of the necessary sum after a dispute's resolution was recently made by the Supreme Court of India in *Bar Council of India v AK Balaji*¹⁴. Lawyers

¹⁰Ram Coomar Condoo v. Chunder Canto Mukherjee, [L.R.] 2 App. Cas. 186 : (1876-77) 4 IA 23

¹¹Raja Rai Bhagawat Dayal Singh v. Debi Dayal Sahu, (1908) 12 Cal WN 393

¹²B Sunitha v. State of Telangana, (2018) (1) 190 SCC 638

¹³Spentex Industries Ltd v Quinn Emanuel Urquhart & Sullivan, AIR Online 2020 Del 704

¹⁴Bar Council of India v AK Balaji, 2018 (5) SCC 379



who graduated from law schools can now enter into damages-based agreements, as long as they are not registered advocates under the Advocates Act 1961, according to the Bombay High Court's decision in *Jayaswal Ashoka Infrastructure (P) Ltd. v Pansare Lawad Sallagar*¹⁵

Because of recent changes in the law, India has recently seen an increase in the number of fundraising events that involve the participation of third parties. Under the Specific Relief Act of 1963, specific performance of a contract is no longer a discretionary remedy that a judge may offer if there is no other viable pecuniary remedy. Instead, specific performance of a contract is now an obligatory remedy that must be provided. If it would put the continuation or completion of a construction project in jeopardy, the court cannot rule in favour of the plaintiff in a lawsuit seeking an injunction. The revisions that were made to the Arbitration and Conciliation Act of 1996, on the other hand, do not directly address third-party funding; yet, they have resulted in faster arbitrations as well as stricter and shorter time restrictions for the passing of decisions. If necessary reforms are achieved, such as a robust framework for dispute resolution, an overhaul of the arbitration regime, the enforcement of contracts, and the establishment of commercial courts, then the introduction of third-party funding in India can be carried out without incident.

If an arbitration is funded by a foreign third-party funder or if the funder is headquartered in India – whereby foreign cash is transmitted from India – then the requirements of the Foreign Exchange Management Act 1999 (FEMA) would come into play. This is the case because FEMA was passed in 1999. In this particular scenario, funding from a third party does not fit well into either the category of a current or a capital transaction. It is not obvious how these payments will interact with the regulatory system, which is especially puzzling considering that FEMA is responsible for both of these transactions.

Foreign Exchange Regulation Act (FERA) 1973, which is FEMA's archetypal rule, is neither restrictive nor unlawful if there is any procedural non-compliance, as the Delhi High Court observed in *NTT DokomoInc.v Tata Sons Ltd.*¹⁶ and *Cruz City 1 Mauritius Holdingsv Unitech Limited*¹⁷

¹⁵Jayaswal Ashoka Infrastructure (P) Ltd. v Pansare Lawad Sallagar, 2019 SCC OnLine Bom 578

¹⁶NTT DokomoInc.v Tata Sons Ltd., (2017) SCC OnLine Del 8078

¹⁷Cruz City 1 Mauritius Holdingsv Unitech Limited, 2017 LawSuit (Del) 1611



that the Arbitral awards issued by tribunals with their seats in a foreign country must be respected in today's commercial world. Regardless of whether there is a lay regulation that hinders the implementation, it should not be referred to as being against Indian public policy. The Indian Court enforced awards in each of these cases.

Recently in the leading case of **Tomorrow Sales Agency Private Limited vs. SBS Holdings, INC and Others**¹⁸, the Hon'ble High Court of Delhi ruled that the funder not being either the party to arbitration agreement the arbitration, or the eventual award refused to hold a third party funders liability for furnishing security in an enforcement of a foreign award. The Court further observed that any uncertainty in holding a funder liable for an adverse award would dissuade third party funders from funding proceedings.

The Hon'ble Court also analyzed the applicability of **Gemini Bay Transcription PVT. Ltd. vs. Integrated Sales Services Ltd.**¹⁹, decided by Hon'ble Supreme Court and observed that it has no application where an award is sought to be enforced against a person who is not a party to the arbitral proceedings and has not been imposed with any liability in terms of the award.

The Hon'ble court held that third party funding is essential to ensure access to justice. In absence of third party funding, a person having a valid claim would be unable to pursue the same for recovery of amounts that may be legitimately due. In many cases, in absence of third-party funding, a person having a valid claim would be unable to pursue the same for recovery of amounts that may be legitimately due.

In many cases, the claimants become impecunious on account of the very cause for which they seek redressal. The cost for pursuing claims in arbitration are significant; the same not only include fees paid to arbitrators and institution, but also professional fees for legal counsels and experts and other attendant expenses. A person without the necessary means would have no recourse, in the absence of third party funders.

Third party funders play a vital role in ensuring access to justice. It is essential for the third-party funders to be fully aware of their exposure. They cannot be mulcted with liability, which they have neither undertaken

¹⁸Tomorrow Sales Agency Private Limited vs. SBS Holdings, INC and Others, 2023 SCC OnLine Del 3191

¹⁹Gemini Bay Transcription PVT. Ltd. vs. Integrated Sales Services Ltd. (15) AIR 2021 SC 3836



nor are aware of. Any uncertainty in this regard, would dissuade third party funders to fund litigation.

It is also necessary to ensure that there is transparency and that the party funding is not exploitative. The fact that a party is funded by a third party is a relevant fact in considering whether an order for securing the other party needs to be made.

However, permitting enforcement of an arbitral award against a non-party which has not accepted any such risk, is neither desirable nor permissible. Whilst, there is no cavil that certain rules are required to be formulated for transparency and disclosure in respect of funding arrangements in arbitration proceedings, it would be counterproductive to introduce an element of uncertainty by mulcting third party funders with a liability which they have not agreed to bear.

This judgement has answered in the affirmative, the age-old question of whether third party funding in arbitration is allowed or not. The Honble Court accepted the important role of TPF in arbitration to ensure access to justice.

Way Forward

The concept of third-party funding in international commercial arbitration is new and is currently evolving in other developed countries as well. India on the way to alternative dispute resolution is making a lot of progress but a lot is to be achieved.

The India may establish a robust mechanism for TPF by incorporation of the following :

- (1) International Funders may be allowed to enter the Indian market by creating a conducive regulatory environment that may significantly benefitted the industry like Australia and Singapore.
- (2) By creating regulatory bodies to oversee TPF and ensure industry integrity (Like in Australia).
- (3) By enacting a comprehensive legislation which clearly define and regulate TPF Agreements. It should address the enforceability of TPF Contracts, Protect the rights and obligations of funders and litigants, mandatory disclosure and also protect a system in case of abuse of process of law Like Singapore's Civil Law (Amendment) Act of 2017.



- (4) By developing best practices and industry led initiatives to standardised TPF Practices like the American Bar Association “Best Practices for third party litigation funding”.
- (5) Indian Courts may also establish jurisprudence for upholding the validity of TPF Agreements and also safeguard the integrity of judicial process like the english court’s approach to TPF (Arkin Case) .

Conclusion

The rise of third-party funding in International Arbitration is a complex phenomenon which is full of challenges and opportunities so it requires careful consideration and thorough analysis. There have been so many issues and challenges such as Conflict of interest, Confidentiality, Disclosure of TPF, Transparency, frivolous claims etc. which may also be considered while making the appropriate regulation to the Indian legal system so that it can be properly regulated and the interest of all stakeholders can be protected.

It will benefit the Indian Legal System to access to justice in cases which involve complex commercial disputes. It provide litigants with the financial support so that they can persue meritorious claim which they might otherwise be unable to afford. The claimant can manage the financial risk associated with the litigation by shifting the burden of legal cost to the funder. It also increases efficiency of case management and which resulted into economic growth of the country.

India can develop a balanced legal framework by incorporating the framework of USA, UK, Australia and Singapore and also learn from the established practices in other jurisdictions to foster the responsible use of TPF and also safeguarding the integrity of justice system in India.

REPERCUSSIONS OF RAPID FASHION FROM A GLOBAL SUSTAINABILITY PERSPECTIVE



Shikha Gurung*
Dr. Bhawna Arora**

Abstract

Since the fashion industry is a highly competent one and everyone wants to maintain their consumers' loyalty, the competition causes them to disregard the environment. The continued demand makes popular brands replenish their stocks frequently. The focus of the fast fashion industry is to quickly and affordably make the newest styles available to a large audience. Movies, haul video influencers, and consumers who don't want to wear the same things again have all contributed to the expansion of these companies. As a result, rapid fashion contributes to environmental damage through increased water usage, textile waste, CO2 emissions, and chemical pollution. It is becoming more and more evident how these trends affect society and the environment, from the carbon footprint that comes with a global supply chain to the dependence on vast amounts of natural resources. The governments of the United States, France, and Australia are employing various tactics to manage the consequences of rapid fashion. But India doesn't have adequate laws to handle fast fashion consequences. However, laws only provide a limited protection of rights in the fashion sector and are frequently unsuccessful in enhancing corporate behaviour. Instead, sustainability programs and corporate social responsibility may fight inequalities in the fashion business and enhance standards and conduct. circular economy and slow fashion can help reduce waste. Additionally, public awareness can also be created to raise awareness among customers regarding the repercussions of the fast fashion industry and how it is impacting the environment as well as society. The paper's goal is to examine all the negative impacts of

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rapid fashion, as well as national and international initiatives designed to reduce these effects and determine what else ought to be needed to control the consequences of the fast fashion sector.

Keywords: *Fashion industry, fast fashion, the environment, consumers, environment, pollution.*

1. INTRODUCTION

Fast fashion is a rapidly changing trend in fashion, leveraging the rapid transition from runway to retail to capitalize on current trends. This trend has gained popularity due to faster manufacturing and delivery, increased customer demand, and increased purchasing power, allowing mainstream consumers to purchase trendy items at a fair price. Fast fashion challenges traditional clothing companies' seasonal collections by releasing fresh goods multiple times in a week, allowing them to compete in the retail market by releasing new collections frequently. Clothing and fashion companies are the second most significant global trade sector, with an estimated annual usage of 30 million metric tons. Their supply network is complex, encompassing manufacturing, logistics, commerce, and petrochemicals. Currently, they manufacture nearly twice as much clothing as in 2000. The rise of fast fashion in industrialized nations has led to air pollution, hazardous substances, and the transformation of raw textile fibers into finished goods. The clothing and textile sectors heavily rely on Earth's resources, such as water, electricity, and basic supplies, which take time to regenerate. Despite rapid production and market access, these resources require time to develop and regenerate, exacerbated by the increasing rate of fast fashion production and consumption. The fashion industry releases harmful substances into the atmosphere, land, and rivers through the production of clothes. These harmful effects persist even after the garments are sold, bought, and worn by buyers. The buyer-use chain continues, with customers frequently cleaning and drying their clothing, leading to increased waste and environmental damage. The production, usage, and end-of-life handling of textiles have significant consequences, increasing waste streams and causing significant environmental impacts.¹

Rapid fashion has a significant environmental and human rights impact, with hazardous chemicals, water pollution, and large carbon dioxide emissions from clothing shipping. It also leads to issues like excessive working hours,

¹Shalini Rukhaya, Saroj Yadav, et.al., "Sustainable Approach to Counter the Environmental Impact of Fast Fashion" 10 *The Pharma Innovation Journal* 517-518 (2021).



unjust compensation, child labor, forced labor, and hazardous conditions of employment. The exercise of human rights is significantly impacted by environmental deterioration. Customers are becoming increasingly aware of the negative consequences of rapid fashion. Rapid-fashion companies are struggling to adapt due to lack of adaptability and false advertising. Customers demand more environmental initiatives, leading to “greenwashing” where brands promise to implement sustainable methods but fail to implement them. This makes it difficult for customers to distinguish between quick fashion and sustainable companies, making it difficult for them to differentiate between the two.²

Rapid fashion offers customers low prices and constant fashion trends, but it also impacts not only customers but also clothing producers, making it problematic to define this sector solely focusing on consumer benefits. A more comprehensive analysis is needed. Rapid fashion production in developing nations is no longer optimal due to cheap materials, labor, and real estate. Sweatshops, the industry’s foundation, contribute to waste and pollution, highlighting the need for sustainable practices and environmental damage due to rapid growth. Fast fashion offers both advantages and disadvantages for customers and employees. It reduces classism by allowing lower-income individuals to buy stylish apparel and stay updated with fashion trends. However, it also has both positive and negative economic, social, and environmental impacts on customers and workers.³

The study uses secondary data analysis to evaluate the advantages and disadvantages of rapid fashion from an environmental, social, and economic perspective. It examines data from other academics and researchers to determine the overall impact of the industry on all parties involved. The analysis aims to support arguments in favor of and against fast fashion, highlighting its overall advantages and disadvantages. The study will explore strategies to mitigate adverse effects of the fast fashion business, aiming to make informed decisions based on the advantages and repercussions of these measures, in conjunction with secondary data research results.

²Annabelle Van Der Maarel and Elena-Laura Álvarez Ortega, “The Human Right to a Healthy Environment and the Fast Fashion Industry” 7-8 (2022)

³Emma Williams, “Appalling or Advantageous? Exploring the Impacts of Fast Fashion from Environmental, Social, and Economic Perspectives” 13 *Journal for Global Business and Community* 1-2 (2022).



2. DEVELOPMENT OF RAPID FASHION

“Fast fashion” was first introduced by Zara in the 1990s, aiming for garments to take only 15 days from design to retail. It was first used in the post-war period, when massive retailing and the Post-Battle Supply System (PBS) structure pushed manufacturing towards major companies. Understanding these factors is crucial for comprehending rapid fashion. The progressive bundle system (PBS) was a more efficient manufacturing method in the 1970s, allowing large producers to offer large quantities at reduced prices. Offshore supply networks allowed big manufacturers to produce goods at low costs, despite longer lead times and less flexibility. However, lower import costs offset these inefficiencies. Traditional retailers lost market share to major manufacturers, leading to a rise in brand manufacturers developing offshore suppliers. By 2015, only 3% of clothing was made in the US due to labor outsourcing trends, with many US clothing manufacturers relocating to developing nations by the mid-1980s. Manufacturers relocated abroad to stay profitable amid declining product prices. However, they faced longer lead times than demand for fashionable clothing. To address this, they focused on global supply chain coordination, establishing a large distribution network for offshore firms. Retailers can now deliver stylish apparel in two weeks. Despite an 8.2% increase in income in 2017, the short lead time between runway and customer adds to the low quality of clothing.⁴

The fast fashion shift originated from traditional manufacturers moving to emerging nations, where consumers now shop online instead of at established businesses that manufacture in rapid fashion. These companies, which have never made their clothing in industrialized countries and lack physical shopfronts, aim to provide stylish clothing at affordable prices. Rapid fashion retailers like Shein, Zaful, and Fashion Nova have experienced rapid growth since the mid-2000s, coinciding with the COVID-19 pandemic. With a global market of \$33 billion, these retailers are expected to reach \$40 billion by 2025. With up to 88% of US shoppers enjoying these retailers, this growth is not surprising. As fast fashion firms gain popularity, customers are becoming more aware of their business methods, including environmental hazards, labor abuse, and sweatshops. This has led to increased public awareness and controversy surrounding fast fashion. In 2022, many customers are aware of the negative effects of fast fashion, but some choose to restrict their shopping or exclusively buy sustainable clothes, while others continue to purchase due to affordability, convenience, and “up-to-date” styles.⁵

⁴*Ibid*

⁵*Ibid*



3. RAPID FASHION'S DETRIMENTAL EFFECTS ON THE ENVIRONMENT

The fast fashion industry's short-lived production process, high material and energy consumption, and disregard for environmentally friendly manufacturing contribute to pollution and waste, while also promoting affordability over sustainability, making less eco-friendly options more practical and affordable, ultimately negatively impacting the environment. The fashion company's detrimental effects on ecosystems are a significant issue that needs urgent attention.

The fast-fashion industry contributes significantly to global pollution, emitting nearly a billion metric tonnes of CO₂ annually. It currently accounts for 10% of global emissions and is predicted to increase by 30% by 2030. The industry also uses 1.5 trillion litres of water annually for fiber production, particularly cotton, which requires extensive irrigation, depleting natural water supplies and causing soil salinization. The industry generates 20% of the world's water waste, which contains hazardous materials harmful to aquatic life and those living near water bodies. 72% of clothes are made from synthetic fibres like polyester, elastane, acrylic, and polyamide. These non-biodegradable plastics can take up to 200 years to break down if not properly disposed of. Polyester, the most used synthetic fibre, is produced using petroleum, requiring energy and chemicals, and releasing pollutants into the atmosphere. Around 700,000 unique microfibres are discharged into water during synthetic clothing laundering, contaminating aquatic species and water bodies. Even the smallest microfibres can enter human drinking water. Every year, 190,000 tonnes of textile microplastic fibres end up in the ocean, a 16 times higher amount than cosmetic plastic microbeads. Some microfibres end up as sewage sludge when they travel through wastewater from homes to treatment facilities. Microfibers from fish consumption contribute to plastics in our food supply chain, potentially contaminating rivers and seas, eventually reaching people's plates.⁶

Chemicals are a significant part of clothing, with each kilogram requiring up to three kilograms of chemicals for fiber, dyeing, and bleaching. Over 8000 synthetic chemicals are used in creating a single garment, negatively impacting the environment, workers, and customers. These chemicals can irritate skin and cause allergies, especially in underdeveloped nations where workers lack adequate safety gear. These chemicals also harm workers across the supply chain, causing harm to both the workers and the environment.

⁶Maria Karvonen, "Why Fast Fashion Industry is a Problem" 13-16 (2022)



A Greenpeace investigation revealed that 52 out of 78 global fashion items contain nonylphenol ethoxylates, a harmful environmental pollutant linked to fetal harm, hormonal imbalances, and cancer. Brands like H&M Clothing, Gap, Adidas, Calvin Klein, Converse Clothing, Nike, and Puma were involved, with Gap being the only brand without the chemical.⁷

3.1 Rapid fashion's social impact

Advancements in technology and consumer purchasing patterns have led to rapid fashion evolution, providing consumers with vast clothing options at low costs. However, this spending is often transferred down the supply chain to workers who face hazardous working conditions, poor pay, and contaminated air and water supplies. Overconsumption in the fast fashion industry has led to increased efforts to change, including consumer activism, clothing unions, anti-sweatshop groups, and “slow fashion.” Large companies have established sustainability boards, set new goals, and produced sustainability reports to improve their reputation and address fast fashion issues. Large clothing brands have released sustainability reports detailing their policies for ethical garment production, but some argue this is a form of “sweat washing” or “greenwashing,” where businesses promise improvements without actually altering their operations.⁸

Along with environment and social impact fashion industry also alleged to practice moral misconduct. Like Chinese fashion company Shein has been accused of unfair business practices in 2024, including modern slavery, cloning small businesses, and breaking labor rules. A recent study indicates Shein hasn't changed much since ethical concerns were raised. As TikTok users showcase their #shein hauls, an estimated 2,000 to 10,000 new articles of potentially dangerous, chemical-laden clothes are being uploaded to their website. Shein, an e-commerce company, has been accused of producing hazardous clothing, plagiarizing designs, selling Nazi symbols, and underpaying employees. The company relies heavily on digital social media marketers and has been criticized for its “help me” notes, which Shein refers to as “confusion,” but has not responded to allegations of taking advantage of employees.⁹ Shein

⁷*Ibid*

⁸Jennifer Back, “Sustainable and Ethical Practices for the Fast Fashion Industry” 9-10 (2017)

⁹Ava Gilchrist and Amy Bradney-George, “The True Cost of Shein is One We’re Not Willing to Pay”, *Elle*, Oct. 04, 2024, available at: <https://www.elle.com.au/fashion/fashion-news/why-is-shein-so-bad-27846/> (last visited on Mar. 5, 2025).



is not only a brand; other businesses have also been the target of numerous identical accusations.

3.2 Several reports on how rapid fashion affects the environment

- I. THE CIRCULARITY GAP REPORT TEXTILES (2024)-according to this report majority of secondary materials used in textile production come from PET bottles, accounting for over 99% of the industry's 3.25 billion tonnes of materials used annually. The majority of raw materials are synthetic fibers from fossil fuels, such as polyester, which account for 70% of the industry's raw materials. Along with this the textile sector faces challenges due to overproduction of low-quality garments, with 30% of clothes remaining unsold. To combat overconsumption and textile waste, prioritizing quality over quantity, focusing on durable, timeless clothes, and offering repair and rental services could significantly increase the industry's circularity. Another issue with this sector is Over 43% of workers in low-income nations are unemployed without legal contracts, often facing risky working conditions, low pay, and limited social safeguards. Although the industry has made progress in addressing these issues, more work is needed to ensure fair pay and safe workplaces for all. The report reveals that China, the world's largest textile manufacturer, accounts for 40% of the materials used in textile production, while the United States, the largest user, significantly contributes to water shortages and climate change, both locally and internationally.¹⁰
- II. FASHION CRIMES: THE EUROPEAN RETAIL GIANTS LINKED TO DIRTY BRAZILIAN COTTON (2024)-under this report The Brazilian Amazon has been significantly harmed by industrial agriculture, which has resulted in the destruction of half of the biome's original flora for agribusiness growth. In 2023, deforestation in the Cerrado habitat, which is home to 161 animal species and millions of human beings, increased by 43 percent. Earthsight's analysis finds that both businesses and customers in Europe and North America have contributed to the degradation by wearing cotton from fast fashion behemoths H&M and Zara. These corporations, with combined earnings of around US\$41 billion in 2022, get their garments from Asian vendors that turn raw cotton into completed items. . The investigation has

¹⁰Circularity Gap Report, "Textiles" 28-41



revealed that SLC Agrícola and Grupo Horita, two of Brazil's largest producers, engage in illicit cotton cultivation in western Bahia, a region of the Cerrado biome extensively damaged by industrial-scale farming.¹¹

III. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) (2023)-The UN Climate Change's Fashion Industry Charter for Climate Action has published two new reports emphasized at lowering greenhouse gas emissions from raw material extraction, manufacture, and processing. The publications build on the 2021 study Exploring Low Carbon Sources of Cotton and Polyester, incorporating animal fibers and man-made cellulose. They provide as a single source of details on global greenhouse gas effect statistics across every raw material category, highlighting data gaps and problems. The studies will assist Fashion Charter members in identifying emission-reduction strategies and working toward net-zero emissions by 2050. Textile Exchange spearheaded the preparation of these reports, with participation from other Charter members.¹²

IV. U.S. GOVERNMENT ACCOUNTABILITY OFFICE (U.S. GAO) (2024)- The Global Action Task Force (GAO) has identified textile waste as a significant environmental issue, with the U.S. Environmental Protection Agency predicting a 50% increase in waste from 2000 to 2018. The problem is attributed to rapid fashion, insufficient collection and sorting systems, and lack of recycling technology. The U.S. Department of Commerce and the Department of State are working together to reduce textile waste and promote recycling. The EPA plans to establish a nationwide textile recycling policy within 5-10 years. However, government institutions' approaches to textile waste and recycling are varying, with most still in their early stages. The GAO suggests interagency coordination and best practices for collaboration to increase efficiency.¹³

V. GREENPEACE (2024)- A Greenpeace report 'Fast Fashion, Slow Poison: The Toxic Textile Crisis in Ghana', reveals that over half

¹¹EarthSight, "Fashion Crimes: The European Retail Giants Linked to Dirty Brazilian Cotton" 27-29 (2024)

¹²"New Analysis Shows How Fashion Industry Can Lighten its Carbon Footprint", UNFCCC, July 31, 2023, available at: <https://unfccc.int/news/new-analysis-shows-how-fashion-industry-can-lighten-its-carbon-footprint> (last visited on Mar. 5, 2025).

¹³United States Government Accountability Office, "Textile Waste: Federal Entities Should Collaborate on Reduction and Recycling Efforts" (2024)



of abandoned fast fashion items in Ghana are unusable and cause environmental and public health damage. This contradicts studies by the Ghana Used Apparel Dealers Association and GIZ, which found only a small percentage of imported used apparel could be classified as trash. Greenpeace discovered three public baths in Ghana polluted with harmful chemicals, including carcinogenic substances such as benzene and poly aromatic hydrocarbons. Clothing trash from Kantamanto Market and unstructured dumpsites is primarily plastic, which degrades into microplastics that contaminate air, water, soil, and the food web. Approximately half a million things wind discarded in open spaces and unstructured dumpsites, intruding on natural regions, suffocating habitats for animals and biodiversity, and polluting the air with deadly black smoke. Brands and authorities in the global north must evaluate the data, listen to local perspectives, and devise practical answers.¹⁴

4. INITIATIVESTOWARDS SUSTAINABLE DEVELOPMENT

4.1 Initiatives by companies towards sustainable development

H&M's 2015 sustainability report emphasizes long-term sustainability and efficiency while maintaining capitalist principles. The company believes purchasing goods from developing nations like Bangladesh and Cambodia can reduce poverty and open global markets. H&M consults with NGOs, unions, and international trade unions, has agreements with Industri ALL and IF Metall, and has made seven sustainability pledges: ethical fashion, climate-smart partnerships, waste minimization, resource use responsibly, and community empowerment.¹⁵

SiiZu is a sustainable clothing company that designs and sells eco-friendly, premium clothing at reasonable prices. They purchase textiles from around the world and maintain local fabric producers and factories. SiiZu lists factories they work with, such as a fabric supplier in Tokyo, a garment factory in Beijing, an apparel company in New York, a jumper manufacturer in Inner Mongolia, and a fabric provider in Suzhou. Each factory has a rationale for their cooperation or is accredited by OEKO-TEX Standard 100.¹⁶

¹⁴Greenpeace Africa, "Fast Fashion, Slow Poison" 3-8 (2024)

¹⁵ Supra note 10 at 9

¹⁶Id at 11



Reformation, founded in 2009, is a clothing brand that focuses on eco-friendly practices. They use the RefScale scale to measure environmental costs and offer a variety of eco-friendly products. The brand sells exclusively online or in stores to reduce retail markups. They procure materials locally and domestically to minimize environmental impact and maintain ethical labor standards. Their website lists eco-friendly items used in their workplaces and activities. Reformation's sustainability is attributed to their commitment to moral labor standards and environmentally friendly operations.¹⁷

Forever 21's website primarily discusses the corporation's charitable initiatives, with a sustainability policy section focusing on their stores' energy-efficient lighting systems and promoting eco-friendly practices, but lacks specific examples.¹⁸

Abercrombie & Fitch's sustainability website, "A&F Cares," promotes the "three Rs Principle: Reduce, Reuse, and Recycle." The company has implemented water conservation, reduced toxic chemical release, and energy-saving measures through recycling and new lights. The company's carbon disclosure initiative focuses on emissions from 2011. The company only includes shops and distribution centers in its energy usage data and collaborates with Renewable Energy Specialists and AEP of Ohio for energy-efficient products.¹⁹

4.2 Sustainable fashion: A positive move

The rise of sustainable or ethical fashion has emerged due to the ecological and social destruction caused by modern methods of manufacturing. This approach aims to provide a platform for craftspeople and ethnic groups, pay workers fairly, and reduce environmental impact. Designers cultures and ethnic identities without acknowledging or crediting their cultural traditions or craftspeople. Traditional manufacturing processes involve minimal factory interaction, sourcing clothing and raw materials from experts and clients. However, ethical designers engage skilled workers and craftspeople in the designing process, providing credit and payment for their work. This allows craftsmen to receive market feedback and profit from their expertise in fibers, textiles, and processes. This approach is considered ethical fashion.²⁰ Fashion that is sustainable consists of:

¹⁷Id at 12

¹⁸Id at 13

¹⁹Id at 14

²⁰Sudeshna Mukherjee, "Environmental and Social Impact of Fashion: Towards an Eco-Friendly, Ethical Fashion" 2 *International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS)* 31-32 (2015).



Reuse and remanufacturing- Reuse and remanufacturing are crucial in waste management as they reduce waste production economically and environmentally. They involve keeping the entire product and requiring minimal work to maintain its usability. Refurbishment involves cleaning, lubricating, or making improvements, while redeployment and cannibalization involve using functional components elsewhere. End-of-life clothing is a lucrative commodity, with second-hand markets in Africa, Asia, and Eastern Europe. In the industrialized world, organizations collect clothing and provide substantial cash incentives, making it a valuable resource for waste reduction. High-quality, rarely used clothing is highly sought after, but even damaged or stained clothing can be recycled into fibers for use in automotive, audio, and mattress industries or sold as inexpensive wipers.²¹

Anastas and Zimmermann's Green Engineering Principles emphasize the importance of nonhazardous substances and energy inputs, waste prevention, and efficient design. They advocate for a shift from "input pushed" to "output pulled" using energy and materials, considering unpredictability and complexity in recycling decisions. Design objectives should focus on durability over immortality, avoiding "one size fits all" solutions, and minimizing material variety in multi-component items for disassembly and value retention. They also emphasize the need for integration with accessible energy and material flows, designing systems for business "afterlife," and ensuring renewable material and energy inputs.²²

Ethical fashion relies on consumer conscientious consumption and customer interaction, rejecting trends and standardization for long-lasting, aesthetically pleasing, and high-quality construction. Local fashion initiatives aim to improve producer-customer interaction, raise consumer awareness of physiological and physical demands, and encourage consideration of clothing's life cycle from raw materials to disposal. Purchasing locally preserves local resources and expertise, and reduces the environmental impact of international garment shipping by purchasing clothing near the manufacturing location.

Growth restrictions- The fashion industry faces financial challenges in reducing its environmental impact due to growing manufacturing and consumption. To improve sustainability, the industry should develop alternative growth models, reduce manufacturing rates, prioritize higher-quality clothing, and reduce production volumes. Encouraging extended producer responsibility,

²¹*Ibid*

²²*Ibid*



where manufacturers and importers are responsible for product disposal and recycling, can encourage more eco-friendly practices and reduce waste.²³

Promote circular economy-By increasing product usage and reducing waste, the fashion sector may embrace a circular economy to improve environmental sustainability. Increased person-product attachments and product satisfaction can help achieve this. Recycling materials at the end of the lifespan of a good may also support the circular fashion sector. When compared to processing virgin fibres, textile recycling, mechanical recycling, chemical recycling, and thermal recycling can all lessen their negative effects on the environment. In certain situations, energy-recoverable textile burning could be a more sustainable option than material recycling. Future clothing must be made with recycling and material loop closure in mind, necessitating industry-wide adjustments.²⁴

Technology recycling-Technology recycling can reduce textile and material waste, but redesigning the fashion system is necessary to avoid excess inventory. Clothing waste can be avoided reactively through reuse, recycling, and disposal, or proactively through prevention and minimization. Innovative manufacturing techniques and collaboration between design and manufacturing can make the model low-waste and sustainable.²⁵

Use of Sustainable fibres-Sustainable fibres are practices and regulations that reduce environmental contamination and use of natural resources for lifestyle demands. Natural cellulosic and protein fibres are considered healthier for the environment and human health. Synthetic fibres are often considered more sustainable, but natural fibers like Lyocell, made from bamboo cellulose, are generally considered healthier. The closed-loop production cycle of textiles using sustainable fibres can have a less negative environmental impact.²⁶

4.3 Initiatives on Fast Fashion by Various Countries

- I. UNITED KINGDOM-With more people searching for “sustainable fashion” and “second-hand clothing” than in any other nation on the list, it appears that the general public is quite interested in slow fashion. Second, even the government has intervened to discourage quick fashion and encourage more environmentally friendly apparel. The

²³Supra note 3 at 520

²⁴*Ibid*

²⁵*Ibid*

²⁶*Ibid*



UK government launched a 10-year initiative in 2022 to encourage the transition to sustainable fashion. The goal is to provide top-notch infrastructure for recycling and sorting while empowering the fashion sector to adopt new business models.²⁷

- II. JAPAN-Japan is leading the slow fashion trend via the Japan Sustainable Fashion Alliance (JSFA). By encouraging collaboration and regulatory changes, this project aims to bridge the gap between sustainable fashion providers and customers. Second, Japanese designers and garment firms are pioneering sustainable fashion. Several businesses are using 3D representations of their designs to save rubbish during sample preparation. Other firms are creating biodegradable garments from wool's protein resin.²⁸
- III. SINGAPORE-Singapore's initiative promoted innovation, technology, sustainability, and Asian crafts. The Singapore Fashion Council (SFC) helps fashion industry players make more ecologically responsible decisions by providing additional resources, networking opportunities, and prioritizing sustainable technologies. A few Singaporean fashion companies have used circular fashion models, another major advancement. The circular model states that buyers may buy clothes and return them to the company for a discount, usually store credit. This works well for children's clothes, which is used less often than adult clothing.²⁹
- IV. UNITED NATIONS- Nairobi, March 14, 2019: Launched today at the UN Environment Assembly, the UN Alliance for Sustainable Fashion aims to stop the fashion industry's socially and environmentally damaging practices and instead use it as a catalyst to improve global ecosystems. Through the analysis of UN agencies' efforts to make fashion sustainable, the identification of gaps in their actions and solutions, and the presentation of these results to governments to spur policy, the Alliance is enhancing cooperation among UN agencies.³⁰

²⁷"Earth Day 2024: Top Countries Fighting Fast Fashion", Expat Explore, Mar. 27, 2024, available at: <https://expatexplore.com/blog/top-countries-slow-fashion/> (last visited on Mar. 5, 2025).

²⁸*Ibid*

²⁹*Ibid*

³⁰"UN Alliance for Sustainable Fashion Addresses Damage of 'fast Fashion'", UNEP, Mar. 14, 2019, available at: <https://www.unep.org/news-and-stories/press-release/un-alliance-sustainable-fashion-addresses-damage-fast-fashion> (last visited on Mar. 5, 2025).



- V. FRANCE- French laws support sustainable and circular business practices, notably the Duty of Vigilance Law, which mandates firms to report human rights violations. Businesses must recycle or reuse unsold apparel and footwear or face a €15,000 punishment under a 2020 regulation. A recent study found the law's effectiveness poor and not meeting its goals. The French government also wants Senate permission to ban fast fashion advertising. By 2030, textiles and clothes, especially fast fashion, might be fined up to €10 per piece. Funds will support clothing recycling facilities. The law seeks to improve French producer responsibility and promote sustainable economic practices.³¹
- VI. Australia- Australia is aiming to circularize its fast fashion industry by 2030 through the Seamless National clothing Stewardship Scheme. The initiative promotes sustainable design, rental, re-manufacturing, repair, and reuse, and better clothing collection and sorting. However, the Australian government has threatened to tax the industry if it fails to improve. Despite criticisms of Australia's lack of recycling infrastructure and tariffs, six Australian firms have joined Seamless.³²
- VII. THE UNITED STATES- A "fast fashion regulation bill" that would take effect in 2027 has been introduced in Washington state, joining California and New York. The proposed legislation aims to raise consumer awareness and enhance supply chain transparency by mandating businesses to identify at least half of their supply chains, identify areas causing environmental harm, and address low wages. Fines of up to \$5,000 can be imposed for non-compliance, with the collected funds used for environmental programs. The "Americas Act" is a US trade law aimed at reducing Chinese manufacturing dependency by encouraging "near shoring." The measure includes \$1 billion for research and development, \$10 billion in loans, \$3 billion in grants for manufacturing and reuse, and a 15% tax cut for companies adopting circular processes.³³

³¹Gian Bonanni, Justine Nolan, et.al., "Explainer: What is Fast Fashion and How Can We Combat its Human Rights and Environmental Impacts?", Australian Human Rights Institute, available at: <https://www.humanrights.unsw.edu.au/research/commentary/explainer-what-fast-fashion-human-rights-environmental-impacts> (last visited on Mar. 5, 2025).

³²*Ibid*

³³*Ibid*



VIII. EUROPEAN UNION- For a decade, the EU has mandated waste prevention and management measures for member states. The EU accepts that these initiatives lack precise, quantitative objectives, making it impossible to relate them to waste creation. The EU launched its Approach for Sustainable and Circular Textiles in 2022 to improve textile quality, ethics, and safety, eliminate quick fashion, minimize textile waste, and raise EU textile sector competitiveness and innovation. The Revision of the Waste Framework Directive mandates member states to develop standardized Extended Producer Responsibility (EPR) schemes for textiles, footwear, and accessories. Manufacturers will pay eco-modulated fees for circular end-of-life infrastructure.³⁴

IX. THE NETHERLANDS-The Netherlands has implemented an EPR plan for textiles, including apparel and home linens, starting in July 2023. The plan aims to recycle 50% of textiles sold by 2025, with a goal of 75% by 2030. Producers and importers who release buyer apparel, business attire, bed linens, tables, and domestic linens on the Dutch market are subject to EPR laws. To fulfill their Extended Producer Responsibility (EPR) duties, producers are advised to register with Stichting UPV Textiel, the Netherlands' own PRO for textiles. The PRO represents 70% of textile manufacturers, more than Seamless aims to achieve through a voluntary program. For textiles sold in the Netherlands, Stichting UPV Textiel charges a tax of EUR 0.10 per kilogram, expected to increase to EUR 0.20 per kilogram in 2025.³⁵

5. CONCLUSION AND SUGGESTION

Fast fashion is a rapidly evolving trend in the fashion industry, leveraging the transition from runway to retail to capitalize on current trends. It has gained popularity due to faster manufacturing, increased customer demand, and purchasing power, allowing mainstream consumers to purchase trendy items at a fair price. The clothing and fashion sector is the second most significant global trade sector, with an estimated annual usage of 30 million metric tons. However, the rise of fast fashion has led to air pollution, hazardous substances, and the transformation of raw textile fibers into finished goods. The fashion industry heavily relies on Earth's resources, which take time

³⁴Nina Gbor and Olivia Chollet, "Textiles Waste in Australia Reducing Consumption and Investing in Circularity" 20 (2024)

³⁵Id at 21



to regenerate. The fashion industry releases harmful substances into the atmosphere, land, and rivers, persisting even after the garments are sold, bought, and worn by buyers. Rapid fashion has a significant environmental and human rights impact, with hazardous chemicals, water pollution, and large carbon dioxide emissions from clothing shipping. It also leads to issues like excessive working hours, unjust compensation, child labor, forced labor, and hazardous employment conditions. Sustainable fashion is a response to the environmental and social damage caused by modern manufacturing methods. It focuses on supporting craftspeople and ethnic groups, paying workers fairly, and reducing environmental impact. Traditional manufacturing processes involve minimal factory interaction, while ethical designers engage skilled workers and provide credit. Local fashion initiatives improve producer-customer interaction, raise consumer awareness of physiological and physical demands, and encourage consideration of clothing's life cycle, preserving local resources and expertise and reducing international garment shipping environmental impact.

Some of the suggestions are: -

1. Consumers should limit their fast fashion lifestyle and approach for sustainable fashion.
2. Need for legislation to limit the uncontrolled growth of fast fashion and to address the consequences of fast fashion. Policymakers and stakeholders should also come forward.
3. Reuse, repair, and recycling of textiles and fiber products. There should also be a circular economy in the fashion industry.
4. There should be use of more suitable products like handloom products, organic products, and other eco-friendly products, etc., in the textile industry.
5. There should be social awareness about how fast fashion is harmful for health and the environment.
6. The second-hand market or e-commerce for pre-owned products should be pushed.

THE INTERCONNECTEDNESS OF PUBLIC HEALTH AND ENVIRONMENTAL SUSTAINABILITY: EXPLORING THE ROLE OF AIR QUALITY, CLIMATE CHANGE AND DISEASE BURDEN



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Abstract

The connection between environmental sustainability and public health is becoming increasingly apparent, with air pollution and climate change among the world's enormous issues. It analyses the complex interrelationships between environmental deterioration and public health outcomes, focusing on the impacts of air quality, climate change, and associated illness load. The worldwide prevalence of cardiovascular and respiratory disorders is primarily due to air pollution, caused mainly by emissions from transportation, industry and agriculture. Climate change makes worse vulnerabilities to public health, exacerbating the frequency of vector-borne illnesses, intensifying heatwaves and amplifying health disparities, especially in low- and middle-income nations.

This research looks at how policy interventions and human action shape feedback loops between environmental sustainability and public health. For example, clean energy transitions, sustainable planning for urban areas, and environmentally friendlier transportation systems, not only reduce greenhouse gas emissions, but also lead to positive results for public health. Because of this, environmental justice is essential in this context, as marginalized people are disproportionately at risk for environmental dangers and health disparities.

Innovative techniques and technology can enhance environmental sustainability and have a great positive effect on public health. Examples

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of policy frameworks that combine health and environmental goals and are essential to resolving the twin problems of environmental degradation and public health decline include the development of green infrastructure, urban reforestation, and adoption of renewable energy. The article then discusses national and international policy solutions and presents case studies of countries and communities that have successfully implemented programs to improve sustainability and health outcomes.

This work highlights the need for integrated approaches to address the dual problems of environmental sustainability and public health within an interdisciplinary framework, highlighting the fundamental connection between the health of the planet and human health on the long term.

Keywords: *Public Health, Environmental Sustainability, Air Quality, Climate Change, Renewable Energy, Sustainable Policy, Environmental Justice.*

1.1 Introduction

The fact that the problems of the world are intricately tied to issues of climate change, environmental degradation and rising responsibility for disease have highlighted the correlation between environmental sustainability and public health more and more. Poor air quality, the further degradation of natural ecosystems, and the growing impacts of climate change are not separate problems; they are part of a vicious cycle in which environmental damage contributes to health risks and poor public health strains natural resources even further. This association is especially worrisome in light of climate change, which modifies disease distribution, disturbs weather patterns, and increases the frequency of extreme weather events, and air pollution, which kills millions of people prematurely every year worldwide.¹

Increasing global temperatures are driving environmental changes that are making water, food security and infectious disease transmission more variable. In addition, they are worsening chronic illnesses like mental health, cardiovascular and respiratory illnesses. Particularly vulnerable are low-income groups; children; the elderly; those who live in areas most exposed to environment hazards; who bear disproportionately high burden of these diseases.²

¹Haines, Andy et al., “*Climate Change and Human Health: Impacts, Vulnerability and Mitigation*,” Lancet, Vol. 367, 2006, pp. 2101-2109.

²Smith, Kirk R. et al., “*Public Health Benefits of Strategies to Reduce Greenhouse gas emissions*,” Lancet, Vol. 374, 2009, pp. 2091-2103.



The illness burden—climate change—air quality connexions point to the necessity of joint efforts to improve public health and environmental sustainability. These programmes should have their main goals of reducing emissions, enhancing air and water quality and building robust health systems that can adapt to future environmental problems.

1.2: Objectives of the Research Paper

1. Examine How International Collaboration Can Help Address Environmental Health Concerns.
2. Promote Integrated Approaches to Enhance Environmental Sustainability and Public Health.
3. Emphasize How Advocacy and Education Can Help Advance Sustainable Practices.

1.3: Scope Of The Research Paper

This research study has shown the complex relationship between environmental sustainability and public health with an emphasis on the effect of air quality, climate change and the resulting illness burden. This study examines how environmental issues like air pollution and climate change directly affect human health and how public health systems adjust to these ecological difficulties. It covers theoretical as well as practical aspects. From the many ways that environmental deterioration increases the burden of disease, climate change has worsened the development of infectious diseases, such as respiratory and cardiovascular conditions caused by air pollution.

In this study, the impact of poor air quality on the most vulnerable groups—children, the elderly and low-income community residents who are all disproportionately impacted by environmental health issues has been examined. In addition, this research paper has also focused on how the global health issue is made worse by climate change, which manifests itself in the form of extreme weather, rising temperatures, and changing disease vector patterns all of which pose new and developing health risks. In addition, the study has examined the current policy frameworks, public health initiatives and international cooperation mechanisms, to reduce the negative impact of environmental degradation on human health. The case studies from around the world have been analyzed, in countries or areas where ecological variables have had a significant detrimental effect on health, to consider the problems encountered and the approaches taken to overcome them.



In this research paper, the socioeconomic effects of the environmental health hazards and how underprivileged communities are more affected by poor environmental quality and how it burdens healthcare systems have been mentioned. The final goal of the paper is to offer integrated solutions that demonstrate the need for cooperative, multisectoral methods to create healthier, more resilient communities that integrate environmental sustainability with public health goals. This study aimed to contribute to the growing corpus of knowledge on dealing with the interrelated problems of environmental degradation and public health for a sustainable, healthier future for all by bringing together the fields of environmental science, public health and policy.

AIR QUALITY AND PUBLIC HEALTH

2.1.1 EFFECTS OF POLLUTANT AND PARTICULATE MATTER ON CARDIOVASCULAR AND RESPIRATORY HEALTH.

Due to the protracted and multifaceted effects of pollutants and particle matter (PM) on respiratory and cardiovascular systems, there are significant issues for global health. Particulate matter which is firmly deposited in the tissues, such as area particulate matter of PM 2.5 and PM 10, can cause oxidative stress and systemic inflammation by entering the respiratory tract and even the blood circulation.³ This can be aggravating other conditions like asthma, COPD, and bronchitis as well as increasing the likelihood of hypertension, atherosclerosis, and myocardial infarction. Emission of gases like carbon monoxide (CO), sulphur dioxide (SO₂), nitrogen dioxide (NO₂) and ozone (O₃) can cause inflammation of the airway tissues, reduced lung capacity, blood oxygen carriage impairment and respiratory and cardiovascular disease dysfunction.⁴

Long-term exposure has been linked with premature mortality, and exposure affects the most susceptible groups, such as children, older people and those with preexisting medical conditions. In addition, new studies suggest that air pollution might lead to dysregulation of the immune system and epigenetic changes, which cause chronic diseases. Urbanization, industrial emissions, automobile exhaust, and biomass burning cause air pollution. Because of

³World Health Organization, *Air Pollution and Child Health: Prescribing Clean Air*, WHO, Geneva, 2018.

⁴United Nations Environment Programme, *Global Environment Outlook 6 : Healthy Planet, Healthy People* (2019).



insufficient pollution control measures, low and middle-income nations are disproportionately affected in terms of health.⁵ Stricter air quality regulations, cleaner energy sources, and public health initiatives targeted at reducing exposure are all necessary to address the health concerns of pollutants and particle matters. To improve global Health and environmental sustainability, it is crucial to comprehend and address the impacts of the growing burden of pollution-related illnesses.

2.1.2 CASE STUDIES OF COUNTRIES AND CITIES WITH SERIOUS PROBLEMS WITH AIR QUALITY

- I. NEW DELHI, INDIA**—The air pollution levels in New Delhi are often among the highest in the world. Construction dust, industrial pollution, vehicle emissions, and the seasonal burning of agricultural stubble in neighboring states all contribute to the city's poisonous environment. Because of temperature inversions and slower wind speeds, the air quality frequently deteriorates to “hazardous” levels throughout the winter. There are serious health effects, including a lower life expectancy, an increase in respiratory illnesses, and cardiovascular issues. Enforcement is still difficult despite initiatives like the Graded Response Action Plan (GRAP) and the implementation of cleaner fuels (Bharat Stage VI standards).
- II. BEIJING, CHINA**— Beijing has long been linked to extreme air pollution due to its high vehicle density, industrial emissions, and reliance on coal-fired power plants. During the city's notorious ‘apocalypse’ episodes in the early 2010s, PM2.5 levels were often more than WHO criteria by several times. The government has been improving air quality by limiting car usage, enforcing tight emissions rules and switching to greener energy. However, the city still struggles in the winter when pollution levels rise because of coal heating.
- III. LOS ANGELES, USA**—Problems with air quality in Los Angeles are caused by industrial pollutants, car emissions, and geophysical elements like the basin topography, which traps pollutants. Indeed, the city has moved forward greatly since the middle of the 20th century due to laws like the Clean Air Act and stricter car emissions regulations.

⁵Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability*. (2022).



Ozone pollution, however, continues to be an issue and can lead to respiratory illnesses, particularly among susceptible groups.

- IV. JAKARTA, INDONESIA**—All these contribute to Jakarta's bad air quality: reliance on coal for energy, high traffic congestion and fast urbanization. Adding to the problem is transboundary smoke from forest fires and open garbage burning in neighbouring areas. Many people have respiratory issues because Jakarta's air pollution is often PM2.5 levels above WHO recommendations. In response to the city's air pollution problem, lawsuits were brought against the government to force stronger rules and better enforcement.
- V. ULAANBAATAR, MONGOLIA**—Ulaanbaatar is one of the most polluting cities in the world, and in the winter, people burn coal and other solid fuels to keep themselves warm. PM2.5 concentrations become dangerously high when frequent temperature inversions are paired with the associated air pollution. This has serious health effects and includes increased heart disease and respiratory infection rates, especially in children. Two of the initiatives to cut pollution are switching to electric heating and improving urban planning, but there are still problems with scarce resources.
- VI. MEXICO CITY, MEXICO**—Mexico City is located in a high-altitude basin and has suffered from severe air pollution due to industrial activity, automobile exhaust, and geographical constraints trapping pollutants. After the air quality became dangerous in the 1990s, the government passed laws such as 'Hoy No Circula,' car limitation programme, and phased out leaded gasoline. Improvements in air quality notwithstanding, the city is also exposed to ozone and particle pollution, which may contribute to cardiovascular and respiratory illnesses.
- VII. LAHORE, PAKISTAN**—Lahore is often exposed to hazardous smog during the winter due to industrial activity, vehicle emissions and crop burning in neighbouring areas. Dangerously high PM2.5 concentrations make the city's air some of the worst in the world. This has caused many health problems, such as respiratory infections and decreased lung function among the inhabitants. Lax enforcement of environmental laws and a dearth of public knowledge worsen the issue.
- VIII. CAIRO, EGYPT**—Cairo suffers from severe air pollution due to the open burning of agricultural waste, traffic jams, and industrial



pollutants. Seasonal smog occurrences, called the “black cloud,” impair air quality and impact millions of people: high ozone levels and particulate matter cause cardiovascular and respiratory issues, particularly in low-income areas. Cleanerr rules and cleaner fuel programs are two measures to reduce pollution, but enforcement is uneven.

3.1 CLIMATE CHANGE AND DISEASE BURDEN

3.1.1 EFFECTS OF RISING TEMPERATURES AND CHANGING ECOSYSTEMS ON DISEASE TRANSFORMATION

Global patterns of disease transmission are being significantly impacted by rising global temperatures and shifting ecosystems brought on by climate change. These modifications enlarge the geographic range of viruses, modify the habitats and behaviours of disease vectors, and upset ecological balances that formally regulated the spread of illnesses.⁶ As a result, infectious and non-communicable illnesses are spreading more widely, which has important global health ramifications.

The spread of vector-borne illnesses is one of the most prominent consequences of warming temperatures. Because their life cycles and reproduction rates rely on temperature, vectors such as flies, mosquitoes, and ticks are susceptible to temperature variations. For instance, warm temperatures are ideal for the *Aedes aegypti* mosquito, the primary vector of illnesses including dengue, Zika, and chikungunya. As temperatures rise, these mosquitoes spread into previously colder places, such as high-altitude tropical regions and portions of North America and Europe.⁷ In populations with weak immunity to these diseases and minimal past exposure, this expansion raises the danger of disease outbreaks.

Similarly, because of climate change, malaria, which is spread by *Anopheles* mosquitoes, is now occurring in places where it was previously uncommon. Malaria transmission patterns are shifting across South America, Asia, and Africa, with the parasite becoming more friendly at higher elevations and in new locations. This presents serious public health issues, especially in areas with little resources where medical systems might not be prepared to handle emerging outbreaks.⁸

⁶Anil Markandya et. al., *Public Health Benefits of Strategies to Reduce Greenhouse Gas Emissions in the Transport Sector*, 374 *Lancet*, 1930 (2009).

⁷Amritpal Singh, *Climate Change and Public Health Policy: A Comparative Study*, *Indian J. Env't L.* 134 (2013).

⁸R.K. Panchauri & A. Reisinger, (eds.) *Climate Change 2007: Synthesis Report*, (2007).



Zoonotic diseases, or illnesses passed from animals to people, are also a result of shifting ecosystems. Urbanization, habitat loss, and deforestation bring people and wildlife closer together, making spreading diseases easier. For instance, human exposure to bat populations, which serve as reservoirs for illnesses like the Nipah virus and maybe coronaviruses—increases when forest habitats are lost due to agricultural growth.⁹ Warming temperatures may also make it easier for some pathogens to survive and proliferate in soil and water, increasing the risk of waterborne illnesses, including leptospirosis and cholera.

Rising water temperatures are causing dangerous algae blooms and gastrointestinal infection-causing bacteria like *Vibrio cholera* to proliferate in marine habitats. Because warmer seas create favorable circumstances for these microbes, especially in areas with inadequate sanitation and water treatment infrastructure, coastal communities are especially vulnerable.

Extreme weather events like hurricanes, floods, and droughts are becoming more often and severe owing to climate change, which further exacerbates the effect of shifting ecosystems on the spread of disease.¹⁰ These occurrences cause population displacement, interfere with healthcare systems, and foster an environment favorable to disease epidemics. For example, flooding can cause disease epidemics of leptospirosis, hepatitis, and dysentery, while drought can worsen respiratory issues by increasing dust and air pollution.¹¹

Climate change is associated with non-communicable diseases in addition to infectious diseases. While respiratory and cardiovascular conditions are made worse by rising temperatures and pollution, the stress of climate-related disasters and displacement can lead to mental health problems.

Lastly, the study proves that climatic changes resulting from increase in temperatures and changes in habitats of disease vectors are leading to changes in patterns of transmission, posing complex challenges to health care delivery systems. There is a need for international cooperation in order to solve these issues through surveillance and prevention of diseases, reduction of climate change measures and a sound health system to prevent as well as eradicate new threats.

⁹S. Kumar, Legal Framework for Air Quality Control in India. Challenges and Solutions , 8(1) Indian L. Rev. 67 (2015).

¹⁰Kristie L. Ebi et. al., *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation, Weather and Climate Extremes*, 79 (2016).

¹¹World Bank, *The Cost of Air Pollution: Strengthening the Economic Case for Action*, (2016).



3.2 SIGNIFICANT HEALTH HAZARDS LINKED TO SEVERE WEATHER CONDITIONS

Around the world, extreme climate conditions caused by climate change pose serious threats to people and societies' health. Hurricanes, floods, droughts, heat waves, and wildfires are among the natural disasters that cause both direct and indirect health effects, ranging from short-term physical harm to long-term mental health issues.¹² To lessen their consequences, robust public health systems are desperately needed, as seen by their rising frequency and severity.

Physical harm or death is one of the most direct health risks connected to extreme weather occurrences. For example, hurricanes and cyclones produce powerful winds and storm surges that can uproot trees, demolish infrastructure, and induce floods, which can result in deadly accidents, blunt force injuries, or drowning.¹³ Similar to this, landslides and earthquakes brought on by a lot of rain can result in serious injuries and fatalities. Hospitals and emergency services are frequently overburdened during such incidents, which causes vital medical care to be delayed.

Floods, a frequent result of heavy rains, pose several health hazards. Pathogens that cause watery illnesses, including cholera, dysentery, and leptospirosis, can be found in contaminated floods. The danger of vector-borne illnesses like dengue fever and malaria rises when standing water is left behind because it serves as a mosquito breeding ground.¹⁴ Furthermore, after floods, extended exposure to moist and moldy conditions can cause respiratory problems, especially in those with asthma or compromised immune systems.

Heat waves—another significant extreme weather hazard—become more common and powerful as global temperatures rise. If left untreated, extreme heat can cause deadly heat-related disorders such as dehydration, heat exhaustion, and heatstroke. Particularly in danger are vulnerable groups, including children, older people, and people with underlying medical issues. Heatwaves put the body under more stress and worsen chronic illnesses like respiratory and cardiovascular disorders. Because of their limited green

¹²Akash Gupta et. al., *Sustainable Urban Development: Linking Public Health and Green Infrastructure*, 58 *Urban Stud. J.* 1643 (2021).

¹³Ministry of Environment, Forest and Climate Change, *National Action Plan on Climate Change*, (2008).

¹⁴Indian Council of Medical Research, *Climate Change and Health in India: Fact Sheet*, (2021).



space and heat-absorbing infrastructure, urban regions frequently endure greater temperatures than their rural counterparts, increasing health hazards.

The health effects of droughts, which are frequently associated with extended periods of intense heat, are extensive. They produce less water, and this increases the risk of waterborne diseases because of poor standards of hygiene and sanitation.¹⁵ There are other consequences of low agricultural productivity and increasing levels of malnutrition, particularly in the regions of low income, including food insecurity. In addition, due to higher concentration of dust and other suspended particles, droughts predispose people to respiratory diseases.

Wildfires that are linked to heatwaves and droughts are also likely to have a major impact on human health. ACID emits a great mounting of hazardous gases and small particulate matter. They affect respiratory ailments for the short term and lifetime hazards such as lung cancer, and chronic obstructive pulmonary disease (COPD). The smoke produced by wildfire can travel tens or hundreds of kilometers and affect air quality in areas where the wildfire situation is out of sight, particularly those individuals who have pre-existing respiratory or cardiovascular disease.

To sum up, extreme weather poses a variety of interrelated health risks, from short-term physical harm to long-term mental and chronic health problems¹⁶. To safeguard public health in an increasingly uncertain environment, governments, healthcare systems, and communities must prioritize disaster preparedness, invest in robust infrastructure, and create focused interventions as climate change exacerbates these disasters.

4.1 POLICY INTEGRATION AND SUSTAINABILITY:

4.1.1 CHALLENGES ASSOCIATED WITH COORDINATING ENVIRONMENTAL REGULATIONS WITH PUBLIC HEALTH OBJECTIVES

Public health goals and environmental rules sometimes have different but overlapping aims, stakeholders, and methods, making it difficult to coordinate them. Although both want to safeguard and improve human well-being, institutional, financial, and political obstacles must be removed to match their agendas.

¹⁵Department of Public Health and Environment, *State of Global Air 2020 Report*, (2020).

¹⁶Ramesh Sharma et. al., *Heatwaves and their Public Health Implications in India*, 60(1), *Indian J. PUB. Health* 16 (2016).



A significant obstacle is balancing public health and environmental goals and economic development.¹⁷ Numerous businesses, especially in developing nations, rely on mining, manufacturing, and generating electricity from fossil fuels that pollute the environment. Financial interests may clash with the implementation of strict environmental legislation, which might result in job losses and slower economic development. Businesses frequently pressure policymakers to loosen restrictions, which put short-term financial goals and long-term public health advantages at odds.

Coordination is made much more difficult by the absence of linked policy frameworks. Environmental and public health organizations frequently function separately with distinct missions and little cooperation. For instance, public health departments deal with the effects of poor air quality on respiratory illnesses, while environmental agencies may concentrate on lowering emissions. This compartmentalized strategy may result in inefficiencies, lost chances for cooperation, and contradictory regulations that jeopardize both objectives. Although challenging to develop and implement, an integrated framework considering the relationship between environmental quality and health outcomes is crucial.

Scientific and technical impediments also present significant challenges. It takes a lot of data and study, which may be time-consuming and resource-intensive, to establish certain causal relationships between environmental variables and health outcomes.¹⁸ For example, it takes intricate epidemiological studies that may encounter doubts and methodological difficulties to demonstrate that certain pollutants directly cause illnesses like cancer or asthma. Regulations that put health goals ahead of business or financial interests are complex to defend or enforce without solid proof.

Another significant issue is the enforcement of environmental legislation. Many nations find it difficult to adequately monitor compliance and punish offenders, especially those with little resources. Public health goals are compromised by lax enforcement since communities continue to be exposed to contaminants and environmental risks. Corruption and a lack of political will worsen enforcement issues, particularly in areas where influential industries have a say in regulatory choices.

Stakeholder participation and public awareness are essential but sometimes insufficient. Communities that recognize the significance of environmental

¹⁷Nicholas Stern, *The Economic of Climate Change: The Stern Review*, (2007).

¹⁸Vardhaman Kaushik v. Union of India, All India NGT Rep. 202(Nat’J Green Trib. 2015) pp. 202-218.



rules and public health policies and actively engage in their implementation are more likely to benefit from them. The public is frequently ignorant of the connections between environmental quality and health consequences.¹⁹ Additionally, because of actual or perceived financial constraints, industries and stakeholders impacted by rules may oppose reforms. Inclusive policymaking procedures, including all stakeholders, and extensive public education efforts are needed to overcome this.

Many environmental challenges are transboundary, which adds another level of complication. Since issues like air pollution, water contamination, and climate change frequently transcend

National boundaries and international collaboration must match environmental legislation with worldwide public health objectives. Differences in national enforcement capabilities and regulatory norms might lead to gaps that impede international cooperation.²⁰ For instance, lax rules in one nation might result in pollution that impacts other areas, making collaboration more difficult.

In conclusion, one must remove institutional, technological and financial barriers in order to ensure that environmental legislation meets public health needs. For effective coordination, measures that include enforcement, scientific research, and policies and measures that fully involve stakeholders must be put in place. Many of the global health and environmental problems also require a multi-state approach. It can only be done for the purpose of ensuring sustainable development for the benefit of ecosystems and human health.

4.2 ASSESSMENT OF EFFECTIVE INTEGRATED STRATEGIES

It is only possible to provide long-term solutions to development goals through the utilization of efficient integrated approaches to dealing with related concerns such as health and the environment. Such strategies include legal frameworks, practices and technologies that address how the biological and socio-economic processes are mutually reinforcing. The effectiveness of these strategies in relation to the foregoing considerations is defined as the ability of the strategies to minimize risks, adapt to change, and incorporate environmental and health objectives simultaneously with sustainability and Justice.

¹⁹Millenium Ecosystem Assessment, *Ecosystems and Human Well -Being: Synthesis* (2005).

²⁰Centre for Science and Environment, *State of India's Environment 2023: In Figures* (2023).



The use of extensive air quality control programs is one of the most effective integrated techniques of the process. The experiences found in Beijing and Los Angeles are good examples of the benefits of synergizing public health campaigns, the shift to cleaner power, and measures that curb pollution.²¹ The Chinese capital, Beijing for instance has very aggressively over the last few years brought down particulate matter levels with ambitious programs to curb coal use; tighter car emission standards; and round the clock air quality monitoring. From the analysis of these strategies, adequate funding, clear policy guidelines, and political commitment are critical requisites for the implementation of the strategies. Furthermore, encouraging compliance and guaranteeing long-term efficacy depends heavily on public participation and information accessibility.

Another successful integrated approach is sustainable urban planning. To solve environmental and public health issues at the same time, cities all over the world are implementing greenery.

Infrastructure solutions include permeable pavements, urban forests, and green roofs. By creating recreational areas, these initiatives improve the air and water quality, lessen the impacts of urban heat islands, and promote physical and mental health.²² Singapore's "City in a Garden" program incorporates a lot of greenery into metropolitan areas, enhancing the quality of life for locals and lessening the effects of severe weather. Evaluations of these programs strongly emphasise the value of community engagement, cross-sectoral cooperation, and the initiatives' adaptability to various settings.

Shifts to renewable power sources are yet another real-world integrated strategy. Besides the impacts on greenhouse gas emissions, the shift from fossil fuel-based energy to wind, solar and hydropower energy reduces air pollution and the diseases associated with the latter. Countries such as Denmark and Germany have demonstrated good progress in changing from fossil energy sources to sustainable sources that enhance public health and the environment. Policies that support these tactics are also stressed by evaluating these tactics, including carbon pricing, renewable technologies subsidies and strong P-P partnerships. Based on the reviews, it is also pointed out the need to address challenges such as integration of distributed generation, energy storage and ensuring equal and timely access to Sustainable Energy.

²¹Supra note 15, at 35.

²²Sharon Friel, et al., *Public Health Benefits of Strategies to Reduce Greenhouse Gas Emissions: Urban Land Transport*, 374 *Lancet*, 1930 (2009).



It is established that integrated water resource management (IWRM) undermines the achievement of public health and environmental objectives. Water shortage, quality, and sanitation are among the problems that IWRM tackles by managing water resources holistically.²³ For example, community-led water conservation initiatives in South Africa have increased access to potable water while preserving regional ecosystems. Multi-stakeholder engagement, adaptive management techniques, and the fusion of traditional wisdom with scientific skills are all necessary for the success of such methods.

Even if some tactics have worked, evaluating them also identifies common problems. Ensuring a fair distribution of benefits and coordinating across many sectors and levels of government are frequently challenging tasks. Long-term success also needs steady funding, oversight, and flexibility in the face of changing obstacles.

In conclusion, successful integrated solutions address the linkages between environmental and public health issues by encouraging cooperation, utilising technology, and involving communities. They are crucial for creating resilient and sustainable communities since their effectiveness depends on thorough planning, strong governance, and flexibility.

5.3 RECOMMENDATIONS AND SUGGESTIONS

1. **Enhancing Legislative Structures for Emissions and Air Quality Management**—Establishing strong legislative frameworks that ensure efficient emissions reduction and air quality control is essential. Governments should make the creation and implementation of strict air quality regulations, including legally enforceable limitations for the most critical pollutants, particulate matter (PM_{2.5} and PM₁₀), sulphur dioxide (SO₂), nitrogen oxides (NO_x), and ozone (O₃), a top priority. These requirements must meet or exceed those of the World Health Organisation to safeguard public health.

The other is creating independent regulatory agencies that can monitor compliance and penalize non complying infractions to bolster enforcement. Technologies such as satellite monitoring, accurate air quality monitors, and synthesis of information all work to improve transparency and accountability. By way of example, Beijing and London have established low-emissions zones, which limit the use of cars that pollute heavily and encourage cleaner technologies.

²³Sachs, Jeffrey, *The Age of Sustainable Development*, (2015).



All priorities of such policy changes should be green innovation, sustainable energy alternatives and the phase-out of fossil fuel subsidies. Simultaneously, if transboundary air pollution is to be reduced through international agreements, such agreements must be strengthened, as international accords like the Paris Agreement. Governments must also allocate sufficient resources for public reporting, monitoring and inspection to close implementation gaps.

2. **Encouraging Health Systems That Are Climate Resilient**—As climate change increases health hazards, we must develop resilient health systems to cope with these problems. It reinforces the healthcare system to sustain harsh weather conditions and ensure the availability of essential healthcare services during emergencies. For example, raised facilities hospitals in flood-prone locations may have backup power sources and water purification systems installed.

Climate change-related risk assessments need to be incorporated into the planning procedures of health systems. It means finding out and tailoring treatment so that it satisfies the needs of people in vulnerable groups including children, the elderly and the ones who already exhibit certain diseases. Heatwave preparedness initiatives include early warning systems, cooling centres and public awareness campaigns on heat-related diseases.

Additionally, there must be training for medical staff about how to recognize and deal with new challenges to health from climate change, including vector-borne infections and respiratory diseases related to air pollution. Government international organisations should give financial and technical assistance to such capacity-building initiatives. The WHO's Climate Resilient Health Systems framework is a collaborative project to promote information exchange and serve as a roadmap for national policies.

3. **Promoting Multidisciplinary Cooperation Between Environmental Sciences and Public Health**—To face the interrelated problems of environmental sustainability and public health, discipline silos and the corresponding philosophy of specialization have to be broken down. Public health experts, environmental scientists, legislators, and economists must finally work as one to create integrated plans. For example, collaborative research projects might study the consequences of ecological deterioration on health and find inexpensive remedies.

Multi-disciplinary forums such as task groups, conferences, and think tanks may assist people in working together and sharing ideas. Universities



and research facilities should prioritize interdisciplinary education to produce future leaders who know about the links between the environment and health. At the policy level, governments can establish cross-sectoral organizations to coordinate the work of the energy, environment and health ministries. For example, public health specialists and environmental scientists should be involved in urban planning initiatives to ensure that green infrastructure optimizes both ecological and health benefits.

4. **Raising Global Advocacy and Public Awareness for Sustainable Practices**—Public awareness is a key element of sustainable development because the more knowledgeable persons are, the less likely they are to practice behaviors that damage the environment and public health. But governments, non-governmental organizations and media outlets should coordinate campaigns emphasizing the connections between human behaviour, environmental quality and health outcomes.

For example, campaigns can tell communities about the benefits of cutting waste, energy use and car emissions. Through grassroots projects such as neighborhood clean-up campaigns and tree-planting occasions, there will be a sense of accountability and group action.

Advocacy campaigns must stress that it is urgent to change to sustainable methods globally. The UN and WHO should push for more decisive climate action and educate on the health hazards of environmental degradation, says international agencies. Getting robust material and calls to action in front of many consumers, especially the younger ones.

Consequently, the last thing one can do is add sustainability education into school curricula, which would likely lead to a generation rationally concerned about the environment. In schools, students can learn about pollution, climate change and health to get the information and power to push further ahead to progress.

CONCLUSION

Pollution, climate change, and ecological degradation are complex issues that must be addressed and involve coordinating public health goals with environmental sustainability. For initiatives to produce the significant and long-lasting effects we need, they must be built on strong legislative frameworks, climate-resilient health systems, interdisciplinary collaboration and broad public awareness. Stronger legislation and enforcement Systems can reinforce environmental rules that are more than just created but also executed effectively,



such as enhancing air quality and reducing hazardous discharges. On the other hand, climate resilient health systems save the lives of fashioned population and provide preparedness for Novel Risks due to change in climate.

This integration of disciplines meets the growing need for cross-disciplinary studies in public health and environmental sciences to address integrated health-environment challenges in a systematic manner, and to advance the study of the mutual interactions of these problems among people, communities, and the environment. Last but not least, a group of society is to educate and advocate with the public, thus a responsibility of society is assumed in normalizing individuals and communities to practice sustainable measures as well as supporting policy changes.

In combination, the approaches give a framework for sustainable development where human health is not compromised alongside the health of the natural environment. But society is yet to understand and address the interconnectivity of these domains and if it does, systems that can safeguard the generations of today and tomorrow and the planet can be designed.

There is a divide between environmental sciences and public health; interdisciplinary work allows for the solution of these problems with new and evidence-based methodologies. Last, informing and raising awareness makes them bear responsibility and take sustainable actions as well as vote for legislation changes.

These strategies form a sustainable development model that puts into consideration environmental protection and human welfare. Thus, society is establishing firm systems for the protection of the population's present and future generations and a better world when recognizing and addressing the intricate relations between these sectors.