

AN INTERNATIONAL, PEER REVIEWED, REFEREED & QUARTERLY
**SCHOLARLY RESEARCH JOURNAL FOR INTERDISCIPLINARY
STUDIES**

SPECIAL ISSUE OF
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PUBLICATION FEE: Subscription fee should be directly Deposited / Transferred/ D. D through SBI Net Banking in favors of

Banking Details

Int. Scholarly Research Journal, Account No: 32806695852 Branch: Ambegaon (Bk). Pune, Maharashtra. INDIA, IFSC Code: SBIN0011648. MICR: 4110020, SWIFT CODE: SBININBB238.

Content	Online	Print	Total	Duration
Non Member	₹ 1400/	₹ 650/-	2050/-	One Issue
Individual Membership	₹ 550/-	₹ 3000/-	3550/-	One Year
Institutional Membership	₹ 2000/	₹ 3050/-	5550/-	Five Year

CLAIMS: Claims for undelivered copies may not be made later than four months from the respective month and date of Publication.

PERIODICITY: QUARTERLY (JAN-MAR, APR-JUNE, JULY-SEPT, OCT- DEC)

CHANGE IN POSTAL ADDRESS: One month notice for change in address should be communicated, notified by Sending old postal address and current postal address to Editor in Chief by specifying the Journal Name and ISSN number through postal or e mail: srjisarticles16@gmail.com

Printed and Published by **Mrs. Supriya Y. Netragaonkar** on behalf of Scholarly Research Journal for Interdisciplinary Studies.

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Special Issue of
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SEPT-OCT, 2021, VOL-9, ISSUE-68

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ANALYZING INTERRELATIONSHIP BETWEEN ENVIRONMENTAL PROTECTION, TECHNOLOGY, POLICYMAKING

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Abstract

Technology has played a great role in the environmental protection process that starts with finding solutions to analyse the situation and henceforth ascribing the innovative and novel technical input to tackle the problem at hand. Science and technology have a positive relationship in policymaking is a debated statement, and hence some approaches illustrate a fundamental understanding of the interplay between science and policymaking. We can better understand the utilization of science for policymaking through twofold study, i.e. 'formalization' that means structuring the procedures for summarising the research by making protocols and 'separation' that means making a diving line between the science when used for policymaking.

Environment protection and issues surrounding the same have been discussed in the paper with a variety of literature reviews and hence analyses the latest trend in several sectors interrelating to technology and environment protection.

Technologies also possess several challenges towards environmental protection, and hence the present paper also reflects the understanding of the said area wherein challenging outcomes have been observed within multiple sectors. These challenges could be overcome by fundamentally understanding the interrelationship between technology, policymaking and environment protection that is further discussed in the paper as a suggestive remark.

Keywords: *Adaptation, Environment Protection, Policymaking, Sustainable Development, Technology*



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Introduction

Sustainable development is defined in Brundtland Commission Report 1987 "Sustainable development is the process that meets present requirements without comprising the ability of future generations to meet their own needs", and the said definition has seen the complex question of inter-challenging context which is between "development – progress – growth" and "stability – security – environment" (Dzemydiene et al., 2008, p. 262). Therefore, it is regarded principle that those influencers that may not participate in physical sustainability are as important as other material things that may not directly be part of environmental sustainability. However, institutions and organisations must act in a manner that must lead to ecological

sustainability, and in general, it should be reflected to attain the common objectives with a global approach. Technology has played a great role in the environmental protection process that starts with finding solutions to analyse the situation and henceforth ascribing the innovative and novel technical input to tackle the problem at hand. Engineering aspects of the environmental management issues(Koprivanac et al., 2017) play a significant role in framing the contemporary order for environmental protection regime, and hence the technological proliferation of ideas with theoretical and practical fundamentals gathers more importance than ever. Technology innovation tends towards optimization of such a technology portfolio that results in cost reduction, financial incentives, and political gain. (Kang et al., 2020)

Greenhouse gases have been a significant challenge in the present century, and the most reliable solution to it shall be the CO₂ emission control that is possible with the sincere efforts of the scientific lobby and society in general. (TOKAR et al., 2009). In this effort, renewable energy has also played an earnest effort that directly tackles the challenge at the entry point, which relates to the emission of CO₂ in the environment. Traditional energy generation technologies have been disadvantageous primarily in a twofold manner among others wherein firstly they are polluting at the source and secondly they are controlled by the institutions (state and non-state actors in few cases) that makes it price sensitive. (Ovidiu, 2011)

Trends in areas of technological advancement and Environment Protection

Capital budgeting techniques in the Non-Banking Financial Companies play an essential role in the nature of investment they make. A study on such NBFCs listed in Kuwait Stock Exchange, an important non-financial factor i.e. environment protection, was observed to be considered during the capital budgeting process. (Al-Mutairi et al., 2018, p. 14) Countries like Romania, whose economic resource allocation from unsustainable to sustainable technologies and processes have become evident upon the external commitment during EU integration(Tudorescu et al., 2009, p. 197), have been synonymous in terms of the situation like several other nations whose technological investment in sustainable practises have outgrown in recent times due to international commitments and mutual benefits in multiple sectors. A similar shift in the country Poland was observed towards energy shift from fossil fuels to clean energy sources have been observed that runs in compliance with the EU directives and case of one such renewable energy source, i.e. solar energy, Poland among other EU states keenly promoted the use of solar energy not just in industrial areas but also in the individual households. (DOROZIŃSKA et al., 2016, p. 28)

One of the studies in 2015 in the tourism sector of the European Union had fetched a significant stakeholding of the information technology and communications in the said industry that supports the dissemination of the sustainable tourism destinations, thus offering their share in protecting the environment. (Simona et al., 2015) IT and Communications have played a significant role in the sales of the tourism industry of the EU, and because of the increased penetration of the internet among the public, they have undertaken a vital task of maintaining high environmental quality. Also, the extent of such IT and Communication services shall enhance environmental protection actions(Simona et al., 2015, p. 164). Information Technology and Communications could also play an essential role in assisting environmental protection as the concepts like ecological informatics, green ICT, and ecoinformatics have emerged, integrating the environmental concerns with the remarkable innovation in the ICT industry. (Radu, 2014, p. 177) Technologies have played a notable role in areas like the Maritime Sector (Shipping Industry) that have been a contributor in CO2 emission and almost double than the Aviation sector that seems to be an area of concern in recent times (considering that CO2 emission contribution has increased threefold within decades)(Dragomir & Utureanu, 2015, p. 240). Technological advancement has led to improved management of the shipping industry, which has been a positive change needed for environmental protection.

Technology and environmental policy

Science and technology have a positive relationship in policymaking is a debated statement, and hence some approaches illustrate a fundamental understanding of the interplay between science and policymaking. We can better understand the utilization of science for policymaking through twofold study, i.e. ‘formalization’ that means structuring the procedures for summarising the research by making protocols and ‘separation’ that means making a diving line between the science when used for policymaking. (Sundqvist et al., 2015)

Modelling techniques are significant in analysing the micro-level data, and when such data set is used for a production function parameter, it becomes crucial for environmental and agricultural policy to reflect the objective of such policy analysis(Huang et al., 2012). One such energy modelling study for the Tianjin district of China has been developed that has led to understanding the changing policy horizons in future as the renewables are the new area of thrust by the government. However, an increase in energy demand has led to more consumption of coal-based energy, and hence the ratio of coal-based energy consumption has resultantly decreased. (Chen et al., 2016)

European Union has been at the forefront of the policymaking through the implementation of several programs like Framework program on Shared-Cost Action Programmes for Research and Technological Development, and programs run through the European Commission Joint Research Centre, research initiatives by International Research Cooperation, among others that seek to jointly find a solution to the mainstream challenges towards sustainability and climate change wherein technology was the epicentre of global change initiatives. (Contzen & Ghazi, 1994, p. 101) European Community (now European Union) in 1993 and around was focused on making environmentally viable policies. Hence, it was the responsibility of the EU (then EC) to make policies for the general public, customers and workers for mitigating the risk from hazardous chemicals from industries, and technologically (and scientifically) backed policies were to be appropriately framed, evidencing the role of technology and policymaking in case of an environmental protection regime. (Sors, 1993)

Technological development regarding the renewable resources in many cases dependent on the law and governance policy of the state like one in Kenya wherein the government promote the use of technologies (like the use of highly efficient Kilns) in charcoal production because charcoal is listed as a biomass energy source as per Kenya's legal system. (Njenga et al., 2013, p. 365) Adaption of technologies, however, depends on the state's policymaking where such technologies are introduced or targeted for implementation, and the agriculture sector has been one such sector where a high dependency is traced between policymaking and technological adoption. (Voortman et al., 2003, p. 367) Ecological friendly agricultural practises are only possible when sustainable farming practices that, when adapted with the technologically driven methods, ensure long-term environmental protection as agriculture is a critical participant in the earth ecological system. Technology was and will be the crucial ingredient while making any policy related to environmental protection. One such example could be seen when the Indian government making policy for the environmental protection measures for different sectors have regarded the role of consultants and expertise that were defined to have the technical skillset and formal training in the relevant field of science. (Menon & Kohli, 2008, p. 17)

Challenges concerning environment protection

Technologies are not only helpful in specific ways, instead, act as an impediment to some environmentally relevant issues like one of the protection of indigenous knowledge and customs that are well-regarded protection systems under the global policy for environment protection, and as seen in case of several regions of Canada, the indigenous population have

seen detrimental effects of the increasing influence of technology and lack of policy measures for such indigenous population. (Ohmagari & Berkes, 1997) Technologies like that related to the proliferation of nuclear energy and heavy metals have not been given much thought about environmental protection or social safety perspective, and instead, they were provided more thrust with respect to their market-based utilization. (Dalton, 2006, p. 143) It is of its kind scenario where the technology possesses a short-term profit, but a long-term loss to the environmental protection regime and hence checking the sustainability of the technology is itself a great question to be answered in present time. Water management and quality of water treatment have been the primary concern of environment protection in the present era. Hence, many efforts have been made to find solutions for challenges that simultaneously relate to sustainable development and biological life cycles. (Dzemydiene et al., 2008, p. 263) A study on an eco-industrial system in China has revealed that the major challenge is to ensure that economic development and growth must counter ensure environmental protection and resource security. (Y. Zhao et al., 2008, p. 343) Technological implementations are influenced by two effects that may be categorized as “protection effect” and “encouragement effect”, wherein the former gives a positive response and the latter tend to give a negative response, which acts as a challenge before the regulatory bodies in due course (Salani & Treich, 2009, p. 670). For example, investment in technologies based on the perception of citizens about environmental issues when compared with technical opinion based deployment of the technological resource have created a divergent view among the stakeholders regarding the efficacy of either of the action as standard practice.

Drop at the oil prices in recent times have attracted the industries like shipping that are highly dependent on fossil fuels to make more profit on their investment that makes the shipping industry perceivable to cause more emission of CO₂ as it being a contributor (though not suggested to be a significant contributor) that is raving with the time in overall global CO₂ emissions (Dragomir & Utureanu, 2015, p. 241). Several nations that do not consider the emission from the shipping industry for their national CO₂ emission are also putting the risk of data vacuum or data corruption for the said sector and henceforth possess a challenge for future research and assessments.

Suggestive remarks

Technologies exist in the present time that filter out harmful gases like CO₂, and with the help of such technologies, it becomes clearer that environmental protection could be achieved in a manner beyond imagination. Capturing CO₂ at the emission stage is the most viable solution
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in general that can be achieved through chemical processes by using specific solvents and, in some cases, using film-like structures called membranes and capturing techniques. (TOKAR et al., 2009)

In a study at Changchun Economic and Technological Development Zone (CCETDZ), it was also suggested that the economic development was given significance along with measures like greener and cleaner production and manufacturing techniques, ecologically favourable industrial conditioning, along with others. (Y. Zhao et al., 2008, p. 348). Not only have indirect efforts been made with the help of technologies that simulate the driving forces in the financial and securities market fostering comprehensive growth leading to environmental protection. However, several direct efforts have been enforced like that in the energy industry, positively impacting the environment. Green energies are observed as the substitute of the fossil fuel-based energy industry by lowering (eliminating in few cases) negative externalities of CO₂ emissions with good positive cross elasticity of the demand and have proved to be redeemable by customers interchanging the said source of energy. (Ovidiu, 2011, p. 665)

One of the technologically assisted mechanisms has occurred as the Genetic Algorithm (GA) that makes the research in the field related to the protection of the environment more convenient and efficient than ever wherein materials contribute to processes like lowering the cost of energy, increasing efficiency of computer devices etc. that develops ground for long term environmental protection regime. (Paszkowicz, 2013, p. 717) Even tools and technologies that enhance the existing adeptness of system of technology shall be a needed course of action in future. A study on urban districts of China, where risk assessment tools and technologies have been tested that hold implications on the environment protection and public security, was improved and could be replaced with an efficient tool and technology. (M. Zhao & Liu, 2016) Environmental protection institutions such as Intergovernmental Panel on Climate Change (IPCC) are racking with methods that led to made some disparities during the identification, assessment and synthetization process of such methods, and even a higher degree of independence was observed during which their methods are used that were later recommended with specific improvements by scrutinizing agencies. (Sundqvist et al., 2015, p. 417) Though IPCC is one of the much-regarded agencies of the clime change actions initiatives, the highest degree of scrutiny and a higher level of sincerity must be required to be deployed by such institutions during the following up of processes and procedures relating to environmental protections policymaking. Technology is one of the prime contributors to such climate change

initiatives makes a tremendous difference in the long run if utilized with caution while maintaining the highest grade of efficiency for a piece of better evidence-based policymaking.

Conclusion

It is of immense desire and need of the time that the current scientific research trends in the Higher Education Sector must be given a fundamental role in assessing and solving the challenges pertaining to environmental protection (RAO, 2015) that indeed involve technological contributions at every step of it either directly or indirectly. The technology shall undoubtedly play a vital role in policymaking and hence only a global policy exchange and coordination among countries shall positively impact sustainable development during this global environment change. (Onishi, 2001) This is true for all policy models requiring coordination at the global level since any issue with global implication must be rooted through global channels wherein countries regularly participate, discuss, and implement policy solutions with the same objective. Environment protection developed with a progressive approach with technological assistance and support that, when integrated with policy framing and outcomes, is proving to be a significant sponsor of global climate change initiatives whilst also stabilizing and nurturing a global sustainable development.

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ENVIRONMENTAL RIGHTS AND THE INDIAN JUDICIARY: A CRITICAL ANALYSIS

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Abstract

Indian Constitution when it was adopted in 1950 had no specific provision dealing with the protection of environmental rights, except a directive in Article 47 which provides that the State shall take steps to improve public health. Also there was no specific legislation to accord protection, until 1986, or recognize right to the environment. And yet, remarkably Indian judiciary has chosen to engage themselves in securing environmental rights. It may be noted that in a controlling constitution, it would be necessary for them to approximate the gap between the “is” and the “ought”. In the light of this, the paper attempts to examine the role played by the India judiciary in recognizing and protecting environmental rights.

Key Words: Constitution, Court, Environment, International, Rights



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Introduction:

Environmental issues have become a priority in politics, law, economics, sociology in addition to the traditional subjects of environmental science, geology and ecology etc. They are primarily crises of values. Environmental considerations were ignored by mankind in decision making. Humans have, over the time, overlooked the fact that the duty to protect the environment is deeply rooted in the interrelationship between God, nature and himself (Weiss, 1990, p 198-207)¹.

Environmental issues, however, during the past 49 years are now dealt with in the broader context of the development process and policies, and especially over the past decade, domestic and international pressures have created a fight-back against environmental degradation

¹ See Edith Brown Weiss, E B (1990). Our Rights and Obligations to Future Generations for the Environment. *The American Journal Of International Law* 84(1), 198-207 (1990). <https://www.jstor.org/stable/2203020> Edith has argued that our relationship with other generations of our species and our relationship to the natural system within which we live are two relationships we share with our natural environment and that there is a shared recognition that the present generation has obligation to care and protect environment.

(Hiskes, 2005)². It may be noted that concern for environmental issues has increased and many environmental institutions and policies have been created and adopted at the international, regional and at national level, aimed to maintain ecological balance (Schachter, 1991).³ Nevertheless, these changes have not improved environmental stewardship significantly. In India one of the most significant innovations for the development of environmental law and justice has been the introduction of Public Interest Litigation (Sahu, 2008).⁴

Environmental Protection: International and Constitutional Perspective:

International Perspective: A Brief Note:

The United Nations Conference on the Human Environment, held in Stockholm in 1972, highlighted the need for international action on environmental issues and brought them to the world's notice (Schachter, 1991, p 458).⁵ It may be noted that in the Conference of 1972, environment was recognized as a holistic entity to be protected in its entirety (Knelman, 1972)⁶. This was followed by many similar action plans adopted by the international community to combat environmental problems to develop a strong jurisprudence of environmental rights. The Commission on Sustainable Development, a functional committee of the United Nations Economic and Social Council, was formed in 1992 to track and promote sustainable development (Wanger & William, 2005).⁷ The international environmental issues again

² For contra see Hiskes, R P (2005). Environmental Rights, Intergenerational Justice, and Reciprocity with Future. *Public Affairs Quarterly* 19(3), 177-194. <https://www.jstor.org/stable/40441410> (describes that committed to rigorous policy making for environmental protection, sustainability, or regeneration, environmental ethics arguments rarely achieve their desired effect).

³ See for example Schachter, Oscar (1991). The Emergence of International Environmental Law. *Journal of International Affairs* 44(2), 457-493. <https://www.jstor.org/stable/24357318>. Oscar has described that "it has been long evident that international legal restraints and obligations were necessary to cope with environmental damage that transcended national boundaries. Governments have responded largely through agreements – multinational and bilateral – addressed to particular situations.. [and] a body of international environmental law has now come into being, though it is still partial and uneven."

⁴ See Sahu, Geetanjoy (2008). Public Interest Environmental Litigation in India: Contributions and Complications. *The Indian Journal of Political Science* 69(4) 745-758. <https://www.jstor.org/stable/41856466>. The author has analysed the role of the Public Interest Litigation for environmental protection in the Supreme Court. The author has also argued that the Court's approach in entertaining PILs for environmental protection has not been consistent.

⁵ Schachter, Oscar (1991). The Emergence of International Environmental Law. *Journal of International Affairs* 44(2), 457, 458. <https://www.jstor.org/stable/24357318>

⁶ According to Knelman, between 1 June and 17 June 1972 three separate conferences on the human environment took place in Stockholm and thus describe it as a "prophetic period in the history of humankind." See Knelman, F H (1972). What Happened at Stockholm. *International Journal* 28(1), 28. <https://doi.org/10.2307/40201091>.

⁷ For details see Wanger, David W and William L T (2005). International Environmental Law. *The International Lawyer* 39(2), 191-207. <https://www.jstor.org/stable/40707970>
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received significant attention in 1997 when the Kyoto Protocol on Climate Change was adopted (Hagen, 1998).⁸ The adoption of Rio Declaration on Environment and Development focusing on sustainable development, and twelve other conferences followed to accord protection to environmental rights, develop, and evolve environmental jurisprudence. The body of international environmental law continued to expand since then (Weiss, 2011).⁹

Indian Constitutional Perspective: A Brief Note:

The Constitution came into full force from 26th January 1950 (Ray, 2003, p 3410).¹⁰ During the period of the drafting of the Constitution, it may be noted, that at regional and international levels various human rights documents and were adopted, like the adoption of the Universal Declaration of Human Right, 1948(UDHR)(Purohit, 2000, p 141, 141).¹¹ The framers of the Indian Constitution were influenced by the UDHR, 1948 could not be denied. In this context it may be noted that the categorization of rights into Part III, Fundamental Rights and Part IV, Directive Principles of State Policy Constitution was based on UDHR (Chanhan, 2004, p 467).¹² Despite this, no provision relating to environmental protection was incorporated. It may be relevant to note, however that the global environmental crises, which primarily precipitating crises for human existence itself, received significant attention after 1972 on the protection and improvement of environment had a profound impact on the India in shaping and developing its own legal regime to give recognition to environmental rights within the Constitution and

⁸ See for details Hagen, Pual E *et al* (1998). International Environmental Law. *The International Lawyer* 32(2), 515-537. <https://www.jstor.org/stable/40707419>

⁹ For a details analysis on the evolution of international environmental law after 1972, refer to Weiss, E B (2011). The Contribution of International Environmental Law to International Law: Past Achievements and Future Expectations. *Japanese Yearbook of International Law* 54, 1-27. <https://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=2684&context=facpub>.

¹⁰ See Ray, Aswini K (2003). Human Rights Movement in India: A Historical Perspective. *Economic and Political Weekly*, 38(32) 3409, 3410.

¹¹ See for example Purohit, arguing how human right documents like *Magna Carta*, *French Revolutionary Principles of Liberty, Equality and Fraternity*, *the American Bill of Rights* and *the Petition of Rights*, *the UN Commission on Human Rights*, established in 1945, *Charter defining Human Rights* actually might have influenced the drafter of the Constitution before adopting the Part III and Part of the Constitution. Dr. Purohit, B. R (2000). Indian Fundamental Rights and the Universal Declaration of Human Right. *Central Indian Law Quarterly*, 14(2), 138, 141-142. See also Jose, Benoy (2000). Universal Declaration of Human Rights and Indian Constitution. *Cochin University Law Review* 14 (01-04)181, 183

¹² The sublime and substantive provisions concerning human rights emphasized in the Universal Declaration of Human Rights, 1948, find good and extensive incorporation and expression in Part III and Part IV of the Indian Constitution with the Fundamental Rights and Directive Principles of State Policy. Chanhan, S.S. (2004). Philosophy of Human Rights: A Synoptic View. *Cochin University Law Review*, 28(01-04), 467.
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enacted legislations. The Indian (Daly, 2012, p 73)¹³ Constitution had no specific or direct provision dealing with of the environment except what was indirectly provided in Article 47 which made it fundamental for states to take steps for promoting pollution free environment for all the people.

On the other hand at international level with the adoption of the Declaration of the United Nations Conference on the Human Environment, 1972 held at Stockholm provided that “*man has the fundamental right to freedom, equality and adequate conditions of life in an environment of a quality that permits a life of dignity and well being...*” India adopted, consequently, 42nd Constitutional Amendment and attempted to give a tacit recognition to environmental rights. This amendment added Article 48-A in the Directive Principles and 51-A (g), in the Fundamental Duties. The 42nd Amendment Act brought with it, significant recognition to environmental right. Article 51 A (g) made it a fundamental duty for all citizens of India not only to protect and improve the natural environment but also to have compassion for all living creatures. Another significant aspect of Article 48-A and 51A (g) is that the States and its citizens shall not only protect the environment but must also take steps to improve it. It is relevant to note that Article 48-A required a policy for its implementation and could not be enforced, being directive, by the courts on the inception of individual’s contention. Thus what we see now as a development of environmental jurisprudence in India is largely the story of judiciary responding to the complaints of its citizens against environmental degradation by interpreting directives in conjunction to fundamental rights and perhaps bears silent testimony to disrespect for the injunction of the fundamental law of superior obligation.

Right to Environmental Right and the Judiciary:

Free India started with the Constitution ensuring human rights (Boyle, 2017, p 471, 472)¹⁴ in judicially enforceable rights in Fundamental Rights chapter and judicially non-enforceable rights in Directive Principles of State Policy.

¹³ See for contra Daly, Erin (2012). Constitutional Protection for Environmental Rights: The Benefits of Environmental Process. *International Journal of Peace Studies* 17(2) 71, 73. <https://www.jstor.org/stable/41853036>. It has been argued by Erin that “*constitutionally enshrined environmental rights are particularly challenging for courts for a number of reasons, many of which flow from the lack of certainty about what the “environment” actually entails and how a meaningful conception of the environment can be incorporated into practice of constitutional adjudication.*”

¹⁴ In this context, it is relevant to refer to Alan who has argued that environmental rights as human rights fall within, broadly speaking, three generations of human rights. He has argued that:

Environmental rights do not fit neatly into single category or “generation” of human rights. They can be viewed from at least three perspectives, straddling all the various categories or generations of human rights. First, existing civil and political rights can be used to give individuals... access to environmental information, judicial remedies and political processes... A second possibility is to treat a decent, healthy

Article 32 guaranteed fundamental right to everyone in the form of a right to move to the Supreme Court for the enforcement of any of the fundamental rights. On the other hand Article 226 empowered the High Courts to provide similar care¹⁵. Article 14 of the Constitution significantly addresses the time count of the power spectrum by not allowing any time gap for the approximation of the 'is' to the 'ought' and thus the compulsion of Article 14 *not to deny equal protection of the laws* places a duty on the judiciary to fill the gap between the "is" and the "ought." It may be noted that an independent judiciary equipped with judicial review power has been long considered as critical for the protection of constitutional rights (Chilton & Versteeg, 2018)¹⁶ and so is in the case of environmental rights which were not specifically enshrined in the Constitution. In this part will be analyzed the role of the judiciary to accord a tacit recognition to and develop environmental jurisprudence.

The Supreme Court in *Rural Litigation and Entitlement Kendra, Dehradun v. State of Uttar Pradesh*¹⁷ which involved issues relating to environment and ecological balance, ordered for the closure of the limestone quarries and even made the respondents liable to pay expenses for the harm caused by them to people and to the environment, thus protecting and safeguarding the right of the people to live in healthy environment with minimal disturbance of the ecological balance. The threat to the ecological balance results in the deterioration of the quality of environment and thus apparently involving threat to life. In other words, the right to a clean environment was indirectly recognized as an ingredient of right to live.

In *M.C. Mehta v. Union of India*,¹⁸ a case relating to the leakage of the oleum gas from a factory, the Supreme Court of India impliedly treated the right to live in pollution free environment as a part of fundamental right to life guaranteed under Article 21 of the Constitution. In this case

or sound environment as an economic or social right...The third option would treat environmental quality as a collective or solidarity right, giving communities ("peoples")...

See Boyle, Alan (2007). Human Rights or Environmental Rights? A Reassessment. *Fordham Environmental Law Review* 18(3), 471, 471-472. <https://www.jstor.org/stable/44175132>

¹⁵ Article 141 of the Constitution reads as: "The law declared by the Supreme Court shall be binding on all courts within the territory of India".

¹⁶ See for example Chilton, Adam S and Versteeg, Mila (2018). Court's Limited Ability to Protect Constitutional Rights. *The University of Chicago Law Review* 85(2), 293-336. <https://www.jstor.org/stable/26455909> (describing why court's ability to enforce constitutional rights is more limited than is commonly believed)

¹⁷ AIR 1987 SC 652

¹⁸ AIR 1987 SC 985

the Court propounded the absolute liability principle. In *M C Metha v Kamal Nath*¹⁹, the court applied doctrine of public trust which binds the state as a trustee of all natural resources for public at large and the beneficiary.

In *M.C. Mehta v. Union of India*²⁰, (Tanneries case), the issue involved was that the effluents, from various industries in Kanpur flowing into the holy river Ganga affected the life and health of the people and the ecology of Indo- Gangetic plain, and it was sought to be stopped until ETPs (Effluent Treatment Plants) set up failing which the industries were ordered to be closed. The court in this case was conscious of the fact that the closure of the tanneries would result in the loss of employment and revenue but it was emphasized that life, health and ecology are far more important. The significance of the case lies in its formulization of polluter pays principle.

In *Municipal Council Rattle v. Sheri Vardhichand*²¹, the court has observed that:

Duty under Article 47 is a Constitutional obligation to protect public health from unsanitary conditions. To fulfill this obligation "the municipal councils constituted for the precise purpose for preventing public health cannot run away from its duty by pleading financial inability.

In *M.C. Mehta v. Union of India*²² the court held that:

Article 39 (e), 47, 48 A by themselves and collectively castes a duty on the States to secure the health of the people, improves public health and improves and protect the environment

In *Vellore Citizens Welfare Forum v Union of India*,²³ the court observed that there has to be a balance between development and environmental protection and it could be achieved by the environmental impact assessment. In *Subhash Kumar v State of Bihar*, the Court embeds that a right to quality environment and observed that the "right to life is a fundamental right under Article 21 of the Constitution and it includes the right to enjoyment of pollution free water and

¹⁹ (1997) 1 SCC 388

²⁰ AIR 1988 SC 1037

²¹ AIR 1980 SC 1622

²² 2002 (3) SC

²³ (1996) 5 SCC 647

air for full enjoyment of life.” Also in *T. Damadhar Rao v. Municipal Corporation of Hyderabad*,²⁴ the case related to stop the Life Insurance Corporation and Income Tax Department from building residential houses in a recreational zone. The Andhra Pradesh High Court observed that:

It would be reasonable to hold that the enjoyment of life and its attainment and fulfillment guaranteed by Article 21 of the Constitution of India embraces the protection and preservation of natural gifts without which life cannot be enjoyed the slow poisoning by the polluted atmosphere caused by the environmental pollution and spoliation should also be regarded as amounting to violation Article 21 of the Constitution of India²⁵.

In *K.L. Koolwal v. State of Rajasthan and others*²⁶, the Rajasthan High court held that: Maintenance of health, preservation of sanitation and environment falls within the preview of Article 21 of the Constitution as it adversely affects the life of the citizen and it amounts to slow poisoning and reducing the life of the citizen because of the hazards created, if not check.

In the case of *Kinkridevi v. State*²⁷ Court stated that:

There is both a Constitutional pointer the States and Constitutional duty of the citizens not only to protect, but also to improve the environment and preserve and safe guard the forests the flora-and fauna, the rivers, and lakes and all the other water resources of the country. The neglect or the failure to abide by the pointer or to perform the duty is nothing is short of betrayal of the fundamental law, which the States and indeed every Indian, high or low, is bound to uphold and maintain.

The courts in India have gone beyond recognizing environmental rights to recognizing rights of nature. In *T N Godavarman Thirumalpad v Union of India*²⁸, the court observed that rivers

²⁴ AIR 1987 AP 170

²⁵ In this case the court also held that “Article 48-A of the Constitution imposes “an obligation” on the government including the judiciary to protect the environment.”

²⁶ AIR 1988 Raj 2

²⁷ AIR 1988 HP 8

²⁸ (2002) 10 SCC 606

were treated as goddesses and were afforded protection. In *Mohammed Salim v State of Uttarkhand*, the court held that river Ganga, Yamuna and their tributaries were *legal persons*. In *Lalit Miglani v State of Uttarakhand*, the court held that Gangotri and Yamunotri glaciers and the surrounding parts thereof like lakes, waterfalls, and forests have rights. These approaches adopted by the courts have opened new opportunities in environmental jurisprudence. The Supreme Court of India has addressed environmental protection in a constitutional context more than 80 times since 1975²⁹.

Conclusion:

The judiciary's role in a controlling constitution becomes critical in ensuring that power holders exercise their power in the manner required by the Constitution. The judiciary's role is consequently one of policy control, which is crucial in the fulfilment and enjoyment of fundamental rights. The superior courts in India have deduced environmental rights of individuals from other constitutional provisions, such as the right to life. In India, courts have frequently interpreted the term “right to life” to include rights to a healthy environment as well as other socioeconomic rights (May & Daly, 2017).³⁰

²⁹ May, J R and Daly, Erin (2017). *Judicial Handbook On Environmental Constitutionalism*
https://www.iucn.org/sites/dev/files/content/documents/2_judicial_handbook_on_environmental_constitutionalism_march_2017.pdf

³⁰ *Id*

ENVIRONMENTAL PROTECTION – ROLE OF JUDICIARY AND CONSTITUTIONAL REMEDIES

Dr. Lisha Azeez

Abstract

Right to healthy environment is a universal acceptance. The right to healthy environment got entrenched in Art.21 of the Constitution of India, courts in large measure relied on this right in addressing a variety of aspects relating to protection and improvement of environment.

In Ivory Traders & Manufacturing Association Vs. Union of India, the Delhi High Court held that right of an ivory dealer are subject to the paramount right of other people to have healthy and balance ecology. It also held that killing of elephants for procuring ivory should be stopped for a balanced environment.

Keywords : *Ecology, Balanced Environment, Preservation of Environment, Recommendations.*



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Introduction

Article 21 protects right to life as a fundamental right. Enjoyment of life and its attainment including their right to life with human dignity encompasses within its ambit, the protection and preservation of environment, ecological balance free from pollution of air and water sanitation without which life cannot be enjoyed.

Right to environment is a fundamental right. Other hand, right to development is also one. Here the right to sustainable development cannot be singled out. Therefore, the concept of sustainable development is to be treated as an integral part of life under Article 21.

Case Law

India is a member of the United Nations organization since its inception. To some extent environmental problems can be dealt on regional basis but all problems cannot be said to be a local. All the nation on rich or poor, developed or developing north or south facing the problem of pollution. Thus the problem of pollution is to a large extent a transboundary problem and some time its effects are widely rampant and recognize no boundaries. It is true that we have one planet to live on and we have common future.

In Indian Council for Enviro Legal Action Vs. Union of India , it was observed that: Even though, it is not the function of the court to see the day-to-day enforcement of laws, that being the function of the executive, but because of the non-functioning by the enforcement

agency, the courts as of necessity have had to pass orders or direction to the enforcement agencies to implement the law for the protection of the fundamental rights of the people.

Environmental degradation in India has been caused by a variety of social, economic, institutional and technological factors. Rapidly growing population, urbanization and industrial activities have all resulted in considerable deterioration in the quality and sustainability of the environment. Environmental ethics have also formed an inherent part of Indian religious precepts and philosophy.

The importance of Judiciary in a democratic setup for protection of life and personal rights can hardly be overestimated. India has a highly developed judicial system with the Supreme Court having plenary powers to make any order for doing complete justice in any cause or matter and a mandate in the Constitution, to all authorities, Civil and Judicial, in the territory of India to act in aide of the Supreme Court. The scope of Writ Jurisdiction of the High Courts is wider than traditionally understood and the judiciary is separate and independent of the executive to ensure impartiality in administration of justice.

In considering the role of the judiciary in environmental governance, there are two issues that need to be considered. The first is the role the judiciary in the interpretation of environmental law and in law making and the second is the capability of jurists to effectively interpret the increasingly cross-linked issues brought to their attention.

The Environment Protection Act 1986 defines environment as “environment includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro organism and property.” Besides the physical and biological aspect, the “environment” embraces the social, economic, cultural, religious, and several other aspects as well. The environment, thus, is an amalgamation of various factors surroundings an organism that interact not only with the organism but also among themselves. It means the aggregation of all the external conditions and influences affecting life and development of organs of human beings, animals and plants.

In the ancient India, protection and cleaning up of environment was the essence of the Vedic culture. The conservation of the environment formed an ardent article of faith, reflected in the daily lives of the people and also enshrined in myth folklore, art, culture and religion. In Hindu theology forests, trees and wildlife protection held a place of special reference.

The Indian Constitution, as adopted in 1950, did not deal with that the subject of environment or prevention and control of pollution as such (until 1976 Amendment). The original text of the constitution under Article 372(1) has incorporated the earlier existing laws

into the present legal system and provides that notwithstanding the repeal by this constitution of enactment referred to in article 397, but subjected to the other provisions of the constitution, all laws in force immediately before the commencement of the constitution shall remain in force until altered, repealed or amended by a competent legislature or other competent authority. As a result, even after five decades of independence. The plethora of such laws is still in operation without any significant changes in them. The Principles on environment With a view to protecting and improving the environment, different legislations have been made and different regulations, rules have been issued. The Government of India, through its Ministry of Environment and Forests is administering has enacted nationwide comprehensive laws.

The essential ingredients of the precautionary principle are:

- (i) Environmental measures- by the state government and the statutory authorities- must anticipate, prevent and attack the causes of environment degradation.
- (ii) When there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measure to prevent environmental degradation.
- (iii) The “Onus of Proof” is on the actor or the developer/industrialist to show that his action is environmentally benign.
- (iv) Precautionary duties must not only be triggered by the suspicion of concrete danger but also by concern or risk potential.

In **M.C. Mehta v Union of India** (CNG Vehicle Case) (AIR 2002 SC 1696) The supreme court observed that any ‘auto-policy’ framed by the Government must, therefore, of necessity conform to the constitutional principles well as overriding statutory duties cast upon the government under the EPA. The auto policy must adopt a ‘precautionary principles’ and make informed recommendations which balance the needs of transportation with the need to protect the environment.

The “polluter pays” principle came about in the 1970's when the importance of the environment and its protection was taken in world over. It was subsequently promoted by the Organization for Economic Cooperation and development (OECD). The ‘polluter pays’ principle as interpreted by the Court means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. In other words, Polluter should bear the cost of pollution as the polluter is responsible for pollution’. The principle demands that financial costs

of preventing or remedying damage caused by pollution should lie with the undertakings which cause pollution.

It may be noted that the polluter pays principle evolved out of the rule of 'absolute liability' as laid down by the apex court in Sriram Gas Leak Case.

Vellore Citizens Case: In a landmark judgment where the principle of sustainable development has been adopted by the Supreme Court as a balancing concept, while rejecting the old notion that development and environmental protection cannot go together, the apex court held the view that sustainable development has now come to be accepted as "a viable concept to eradicate poverty and improve the quality of human life while living within the carrying capacity of the supporting eco system." Thus, pollution created as a consequence of development must be commensurate with the carrying capacity of our ecosystem.

FACTS - In this case, certain tanneries in the State of Tamil Nadu were discharging untreated effluent into agricultural fields, roadsides, waterways as open lands. The untreated effluent finally discharges in the river which has the main source of water supply to the residence of Vellore. The Supreme Court issued comprehensive directions for maintaining the standards stipulated by the Pollution Control Board.

Observations

The Supreme Court Observe that the "precautionary principle" and the "polluter pays principle" are part of the Environment law of the country. These principles are essential features of "Sustainable Development." The "precautionary principle" in the context of the municipal law means: (i)Environmental measures by the State Government and the statutory authorities – must anticipate , prevent and attack the cause of the environmental degradation(ii) Where there are threats of serious irreversible damages, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation .(iii) The "onus of proof" is on the actor /industrialist to show that his action is environmentally benign.

Decision: - The Supreme Court directed the Central government to constitute an authority under sec. 3 of the Environment Act, 1986 and confer on the said authority all the powers necessary to deal with the situation created by the powers necessary to deal with the situation created by the tanneries and other polluting industries in the State of Tamil Nadu. The authority (headed by retired judge of the High Court) shall implement the precautionary and polluter pays principles. The authority should compute the compensation under two heads, namely, for reserving the ecology and for the payment to individuals.

The Constitutional and Legislative measures – The Constitution of India and Environment. To protect and improve the environment is a constitutional mandate. It is the commitment for a country wedded to the ideas of a welfare State. The Indian constitution contains specific provisions for environmental protection under the chapters of Directive Principles of the State Policy and Fundamental Duties. The absence of any specific provision in the Constitution recognising the fundamental right to (clean and wholesome) environment has been set off by judicial activism in the recent times.

Article 48A and 51 (A)(g)

A global adaption consciousness for the protection of the environment in the seventies prompted the Indian Government to enact the 42nd Amendment (1976) to the Constitution. The said amendment added Art. 48A to the Directive Principles of State Policy. It Declares:- “the State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country”. A similar responsibility imposed upon on every citizen in the form of Fundamental Duty –

Art. 51(A) (g)

“to protect and improve the natural environment including forest, lakes, rivers and wildlife, and to have compassion for living creatures”. The amendments also introduced certain changes in the Seventh Schedule of the Constitution. ‘Forest’ and ‘Wildlife’ were transferred from the State list to the Concurrent List. This shows the concern of Indian parliamentarian to give priority to environment protection by bringing it out the national agenda. Although unenforceable by a court, the Directive Principles are increasingly being cited by judges as a complementary to the fundamental rights. In several environmental cases, the courts have guided by the language of Art. 48A. and interpret it as imposing “an obligation” on the government, including courts, to protect the environment.

Article 246

Art.246 of the Constitution divides the subject areas of legislation between the Union and the States. The Union List (List I) includes defence, foreign affairs, atomic energy, interstate transportation, shipping, air trafficking, oilfields, mines and inter-state rivers. The State List (List II) includes public health and sanitation, agriculture, water supplies, irrigation and drainage, fisheries. The Concurrent list (List III) (under which both State and the Union can legislate) includes forests, protection of wildlife, mines and minerals and development not covered in the Union List, population control and factories. From an environmental standpoint, the allocation of legislative authority is an important one – some environmental problem such

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as sanitation and waste disposal, are best tackled at the local level; others, like water pollution and wildlife protection, are better regulated uniform national laws.

Article 253

Art.253 of the Constitution empowers Parliament to make laws implementing India's international obligations as well as any decision made at an international conference, association or other body. Art.253 states: Notwithstanding anything in the foregoing provision provisions of this chapter, Parliament has power to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or other body. The Tiwari Committee in 1980 recommended that a new entry on "environmental Protection" be introduced in the concurrent list to enable the centre to legislate on environmental subjects, as there was no direct entry in the 7th seventh enables Parliament to enact comprehensive environment laws. The recommendation, however, did to consider parliament's power under Art.253

Article 14 and Article 19 (1) (g)

ART. 14 states: "The states shall not deny to any person equality before the law or the equal protection of the laws within the territory of India." The right to equality may also be infringed by government decisions that have an impact on the environment. An arbitrary action must necessary involve a negation of equality, thus urban environmental groups often resort to Art.14 to quash arbitrary municipal permission for construction that are contrary to development regulations. **Article 21** (Right to Wholesome Environment) "No person shall be deprived of his life or personal liberty except according procedure established by law." In **Maneka Gandhi v Union of India**, the Supreme Court while elucidating on the importance of the 'right to life' under Art. 21 held that the right to life is not confined to mere animal existence, but extends to the right to live with the basic human dignity (Bhagwati J.) Similarly while interpreting Art.21 in Ganga Pollution Case as discussed before, Justice Singh justified the closure of polluting tanneries observed: "we are conscious that closure of tanneries may bring unemployment, loss of revenue, but life. Health and ecology have greater importance to the people."

Environmental Laws In India

THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974
The Act prohibits discharge of pollutants into water bodies beyond a given standard and lays down penalties for non-compliance with its provisions.

It set up the Central Pollution Control Board (CPCB) which lays down standard for the prevention and control of water pollution. At the state level, the State Pollution Control Board (SPCB) functions under the direction of CPCB. The functions of CPCB have been laid down in section 16 whereas the functions of SPCB has been laid down in section 17. The sampling of effluents for test has been laid down in section 21.

The Air (Prevention And Control Of Pollution Act, 1981)

To implement the decision taken in the Stockholm Conference, the Parliament enacted the Air Act under Article 253.

It controls mainly air pollution and its abatement. Also establishes air quality standards. The Central and State Boards set up under section 16 and 17 independently notify emission standards.

Every industrial operator within a declared air pollution area, must obtain a permit from the State Board (Sec-21(1) and (2)).

Within four months from the date of application for the permit, the board must complete the formalities – either grant or refuse consent.

Power of the Boards:

- Power of entry and inspection
- Power to take samples
- Power to give directions

Other important laws:

1986 - The Environment (Protection) Act authorizes the central government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or restrict the setting and /or operation of any industrial facility on environmental grounds.

1989 - The objective of Hazardous Waste (Management and Handling) Rules is to control the generation, collection, treatment, import, storage, and handling of hazardous waste.

1991 - The Public Liability Insurance Act and Rules and Amendment, 1992 was drawn up to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident while handling any hazardous substance.

2000 - The Municipal Solid Wastes (Management and Handling) Rules, apply to every municipal authority responsible for the collection, segregation, storage, transportation, processing, and disposal of municipal solid wastes.

2002 - The Noise Pollution (Regulation and Control) (Amendment) Rules lay down such terms and conditions as are necessary to reduce noise pollution, permit use of loud speakers or public

address systems during night hours (between 10:00 p.m. to 12:00 midnight) on or during any cultural or religious festive occasion.

1927 - The Indian Forest Act and Amendment, 1984, is one of the many surviving colonial statutes. It was enacted to 'consolidate the law related to forest, the transit of forest produce, and the duty leviable on timber and other forest produce'.

1948 – The Factories Act and Amendment in 1987 was the first to express concern for the working environment of the workers. The amendment of 1987 has sharpened its environmental focus and expanded its application to hazardous processes.

Writs And PILs For Safeguarding The Environment

A writ petition can be filed to the Supreme Court under Art.32 and the High Court under Art.226, in the case of a violation of a fundamental right. Since the right to a wholesome environment has been recognised as an implied fundamental rights, the writ petitions are often resorted to in environment cases. Generally, the writs of Mandamus, Certiorari and Prohibition are used in environmental matters. For instance, a Mandamus (a writ to command action by a public authority when an authority is vested with power and wrongfully refuses to exercise it) would lie against a municipality that fails to construct sewers and drains, clean street and clear garbage (**Rampal v State of Rajasthan**) likewise, a state pollution control board may be compelled to take action against an industry discharging pollutants beyond the permissible level.

The writs of certiorari and prohibition are issued when an authority acts in excess of jurisdiction, acts in violation of the rules of natural justice, acts under a law which is unconstitutional, commits an error apparent on the face of the record, etc. For instance, a writ of certiorari will lie against a municipal authority that consider a builder's applications and permits construction contrary to development rules e.g. wrongfully sanctions an office building in an area reserve for a garden. Similarly, against water pollution control board that wrongly permits an industry to discharge effluents beyond prescribe levels. A writ of Certiorari will lie against a municipal authority that permits construction contrary to development rules or acts in excess of jurisdiction or in violation of rules of natural justice for instance wrongly sanctioning an office building in an area reserved for garden. When a fundamental right, which includes right to wholesome environment is violated Art. 32 and 226 provide appropriate remedy.

In **Mahesh R Desai V. Union of India**, a journalist complained to the Supreme Court that the national coastline was being sullied by unplanned development that violated a Central Government directive. The Supreme Court registered the letter as a petition, requested the

court's legal aid committee to appoint a lawyer for the petition and issued notice to the Union Government and the government of the all States.

Taj Mahal Case:

In Taj Mahal's case (M C Mehta V. Union of India, AIR 1997, SC 734), the Supreme Court issued directions that coal and coke based industries in Taj Trapezium (TTZ) which were damaging Taj should either change over to natural gas or to be relocated outside TTZ. Again the Supreme Court directed to protect the plants planted around Taj by the Forest Department as under:

The Divisional Forest Officer, Agra is directed to take immediate steps for seeing that water is supplied to the plants... The Union Government is directed to release the funds immediately without waiting for receipt of the proposal from the U.P. Government on the basis of the copy of the report. Funding may be subsequently settled with the U.P. Government, but in any set of circumstances for want of funds the officer is directed to see that plants do not wither away. The Court held that 292 industries located and operating in Agra must changeover within fixed time schedule to natural gas as industrial fuel or stop functioning with coke /coal and get relocated. The industries not applying for gas or relocated are to stop functioning with coke/coal from 30-04-97. The Shifting industries shall be given incentives in terms of the provisions of Agra Master Plan and also the incentive normally extended to the new industrial units.

The integration of the international principles of environmental law into the Indian legal framework is an important consequence of the emergence of Public Interest Litigation in the realm of environmental law. (Razzaque, 2004) In fact, the application and re-interpretation of international legal principles in the Indian context reflect a greater concern with making hazardous industrial enterprises responsible towards environmental concerns.

The Bhopal Gas Leak Case

The Bhopal disaster raised complex legal questions about the liability of parent companies for the acts of their subsidiaries, the responsibilities of multinational corporations engaged in hazardous activities, the transfer of hazardous technologies and the applicable principles of liability. Bhopal was inspirational factor for the judicial innovation in the area of evolving principles of corporate liability for use of hazardous technology.

On December 3, 1984, highly toxic methyl isocyanides (MIC), which had been manufactured and stored in Union Carbide's chemical plant in Bhopal, escaped into the atmosphere and killed over 3,500 people and seriously injured about 2 lakh people.

The Bhopal gas leak disaster (Processing of Claims) Act, 1985 was passed by parliament to ensure that the claims arising out of the Bhopal disaster were dealt with speedily, effectively, equitably and to the best advantage of the claimants.

High Court Judgment:

Justice Seth used English Rules of procedure to create an entitlement to interim compensation (i.e. it is permissible for courts to grant relief of interim payment under the substantive law of torts). Under the English rules, interim relief granted in personal injury cases if a prima facie case is made out. He said that “more than prima facie case have been made out” against the Carbide.

He observed that the principle of absolute liability without exceptions laid down in M.C. Mehta case applied more vigorously to the Bhopal suit. He holds that Carbide is financially a viable corporation with \$ 6.5 billion unencumbered asset and \$200millions encumbered assets plus an insurance which could cover up to \$250millions worth of damages. Given carbide’s resources, it is eminently just that it meet a part of its liability by interim compensation (Rs.250cr.)

In **Union Carbide Corporation v Union of India** (AIR 1990 SC 273), the Supreme Court secured a compromise between the UCC and Government of India. Under the settlement, UCC agreed to pay US \$470 million in full and final settlement of all past, present and future claims arising from the Bhopal disaster. In addition to facilitate the settlement, the Supreme Court exercised its extraordinary jurisdiction and terminated all the civil, criminal and contempt of court proceedings that had arisen out of the Bhopal disaster. It was declared by the court that if the settlement fund is exhausted, the Union of India should make good the deficiency. Review petition under Art.137 and writ petitions under Art.32 of the Constitution of India were filed questioning the constitutional and under the Bhopal Act (providing for the registration and processing of claims) and the resultant categorization of the victims was also upheld. It was laid down that there is no need to tie down the tortfeasor to future liability [UCC v UOI AIR 1992 SC 248].

Criminal Liability of Carbide Officials:

In UCC v UOI (AIR 1992 SC 248), the supreme court reinstate criminal charges for homicide not amounting to murder’ (Sec. 304,Part II, IPC) against top executives at Union Carbide(viz. nine UCIL employees and three foreign accused, including Warren Anderson, the CEO) while uploading the rest of the settlement. The CBI in December 1993 finally prepared the documents necessary to extradite Warren Anderson. The powers vested to the Pollution Control Boards

are not enough to prevent pollution. The Boards do not have power to punish the violators but can launch prosecution against them in the Courts which ultimately defeat the purpose and object of the Environmental Laws due to long delays in deciding the cases. Thus, it is imperatively necessary to give more powers to the Boards. What we need is social awareness from below, not laws from the above. No law works out smoothly unless the interaction is voluntary. In order to educate people about the environmental issues, there should be exhibition of slides in the regional languages at cinema houses and television free of cost. Further, as directed by the Supreme Court of India in M C Mehta Case (M C Mehta V Union of India 1992, SC 382) school and college levels in graded system so that there should be general growth of awareness.

Pollution Control Board

The Pollution Control Boards have powers to initiate action against the polluters. However, these Boards had till the recent past been functioning as record-keepers maintaining statistics regarding pollution and only during the last few years these Boards have taken some initiatives to protect and improve the environment after being directed by the courts.

Environmental Laws

The environmental laws provide for a certain procedure for taking cognizance of offences such as Section 49 of the Water (Prevention and Control of Pollution) Act, 1974 provided that no court shall take cognizance of any offence under the Act except on a complaint made by a Board or any officer authorized in its behalf by it or any person who has given notice of not less than sixty days, of his intention to make a complaint, to the Board or officer authorized as aforesaid. Similar are the provisions relating to cognizance under Section 43 and 19 of the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 respectively.

In *Lakshmi Cement V State*, it was held that Section 133 CrPC does not automatically or impliedly get repealed after the commencement of the Air (Prevention and Control of Pollution) Act, 1981. So proceedings under Section 133 Cr PC are not barred. But while passing an order under Section 133 the Magistrate should be very keen about the complaint and also should see the fulfillment of the required conditions as stipulated.

Conclusion and Recommendations

The primary effort of the Courts while dealing with environmental issues had been to not only punish the offender but also to seek proper enforcement of such laws.

With regard to control of noise, the State Government can classify the area on the basis of criteria in the Schedule. All development authorities, local bodies and other authorities concerned shall adopt measure in order to avoid noise menace, and to achieve the objective of maintain the ambient air quality standards in respect of noise an area of 100 meters around hospital, education institutions and courts may be declared as silence zone.

The rule relating to control of ozone depletion provide for prohibition on new investment with ozone depleting substances, regulation of sale, purchase, use of ozone depleting substances and control of production and consumption or ozone depleting substances. There is regulation of import export and sale of products made with or containing ozone depleting substance.

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Narmada Bachao Andolan Case

Article 51A(g) read as : Fundamental Duties – It shall be the duty of every citizen of India-(g) to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures.

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ROLE OF JUDICIARY AND ENVIRONMENT PROTECTION IN INDIA

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Abstract

The concept of judicial review in India is based on US judicial review system. Judicial review provides the freedom of judiciary through that it maintains the concept of Constitutionalism in Constitution. In judicial review the judiciary exercises its power so that it can maintain the coordination among different organs of the State so as to enable them to work in the prescribed limits as provided by the Constitution. So through the power of judicial review the judiciary can check the legality of any enactment whether it is passed by the parliament or by the state legislation. The significant commitment of the Supreme Court to human rights law has been expanding the extent of Article 21 and identifying it with directly to life. It includes inside directly to safe and contamination free condition. A tremendous assortment of case law has been created supporting the directly to a perfect and solid condition as a key directly inside the significance of right to life under Article 21 of the Constitution of India. This section draws out the forces of the legal executive and talks about case law and the critical choices passed on by the Incomparable Court for a directly to condition and the standards set up for security of nature and human privileges of the general population influenced by environmental pollution. This article focuses on active participation of judiciary in environment protection and judicial activism expanded the scope of Public interest litigation. This paper also critically examines the role of judiciary with the help of relevant cases.

Keywords: Environment, Environment Protection, Judicial Activism, Supreme Court, Environmental Jurisprudence.



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Introduction

Environmental Jurisprudence has emerged out of the rising human consciousness towards the threat to the environment by uncontrolled human activities and sustainable development for future generations. It encompasses the functions and powers of all three organs of the government under constitutional framework, critically analyzes the existing mechanism devised to protect the environment and suggests corrective measures. Environmental jurisprudence not only includes the laws which are made under the statutory authority, but

also includes the interpretation of statutes and laws made by the judiciary. The Stockholm Conference, 1972 is a landmark event in the history of environment jurisprudence, which gave an impetus to all signing countries to take appropriate measures for the protection of the environment. Exercising its powers under article 253 of the constitutions of India and to oblige its treaty obligation, parliament introduced 42nd amendment and inserted Article 48-A and 51(A)g. Since then, a numerous legislative and judicial actions have shaped the environmental jurisprudence in India.

Judicial Activism

Article 32 of the Indian Constitution provides very vast powers to the judiciary through that the judges are not only imparting the justice but also moulding new concepts and strategies in different areas. These new and emerging strategies and concept are known as judicial activism, means active participation of judiciary each and every field. The history of judicial activism can be traced back in mid-seventies. The reasons for emergence of judicial activism are still not very clear but irresponsible nature of government, excess pressure on judiciary, legislative vacuum and the judicial enthusiasm would be the reasons of a judicial activism in India. Earlier a person could file a writ petition under Article 32 in Supreme Court and under Article 226 in the high court for the enforcement of his or her fundamental rights but through the introduction of PIL, a person can file a suit for rights of others. These two provisions are provided as weapon in the hands of judiciary. Though there is no such legislation that defines the term Judicial Activism but some definitions are available to understand the concept judicial activism such as-

Judicial Activism is defined under the Black's Law Dictionary as, "*a philosophy of judicial decision making whereby judges allow their personal views about public policy, among other factors, to guide their decisions, usually with the suggestion that adherents of this philosophy tend to find constitutional violations and are willing to ignore precedents.*"

Merriam –Webster's Dictionary of Law defines the Judicial Activism as, "*Judicial Activism is the practice in the judiciary of protecting or expanding individual right through the decision that depart from established precedent or are independent of or in opposition to supposed constitution or legislative intent.*"

Justice V.G.Palishkar defines, “judicial activism as process of law making by judge. It means an active interpretation of existing legislation by a judge, made with a view to enhance the utility of that legislation for social betterment.”¹

Judicial Activism and Environment

The journey of judicial activism in the field of environment basically started in 1990s. The Bhopal Gas Leak Tragedy gives a new transformation in the role judiciary and now the judiciary gives more focus on environmental issues. But it doesn't mean the legislature was silent in case of environment protection. After the Stockholm Declaration 1972, various legislations had been passed in order to fulfill the obligations of Stockholm Declaration. Major amendments have been done in the Constitution of India in 1976 by adding two new Articles that is Article 48-A and Article 51-A (g) for the environment protection. But the interpretation of Article 21 of the Constitution of India by Supreme Court gives a new direction to the judicial activism in the way of environmental jurisprudence. Public Interest Litigation has expanded the scope of locus standi and the judicial review. These are the basics features of judicial activism and this way judiciary has started a new era in environmental cases.

Public Interest Litigation

The Supreme Court, recognizing that a greater part of the populace can't to get to the equity framework, received a dynamic methodology by loosening up the standard of standing and allowing standard nationals to request of the Court in issues of open intrigue. In 1990s various natural issues preceded the Prominent Court as PILs. Despite the fact that formal pleadings are not demanded upon in PILs, in light of the issues included the court may look for the help of an amicus curiae. It might likewise select chiefs or master bodies to confirm the actualities and submit reports. Regularly the master bodies in condition cases are government offices, for example, NEERI and CPCB which are approached to give suggestions for remedial activity. Prior to choosing to acknowledge or reject such reports the Court hears the complaints, assuming any on the reports submitted. The Court decisions in PILs are not self-executing. As clarified by Justice Muralidhar, the natures of headings given in PIL cases are either definitive or obligatory. The obligatory requests are through proceeding mandamus in which the Court gives explicit bearings to errant state specialists to make explicit strides. The court screens such requests to guarantee their consistence and

¹Referred in Article, 'judicial Activism' by Justice V.G.Palishkar, AIR 1998 Journal, Vol.8 pg. 201.
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incorporates with the bearings a fore-cautioning of the results of non-usage notwithstanding adding up to a scorn of court. To guarantee requirement, the court screens execution of its choices, looks for intermittent reports and keeps the prosecution alive.

In the event that usage lingers behind, the court requests that authorities show up actually in court what's more, clarify the issue. An extensive piece of the courts orders are consented to as there is a dream of being pulled up for disdain of court.

The public interest litigation not only paves the way for environmental justice in India but also make a relationship between International law and the municipal law. The court has cited various international norms in its conclusion in number of cases. In *Essar Oil Ltd. v. Halar Utkarsh Samiti and Others*,² the apex court observed that, “*Stockholm Declaration as “Magna Carta of Environment”*. This, therefore, is the aim, namely, to balance economic and social needs on the one hand with environmental considerations on the others. But in a sense all development is an environmental threat. Indeed, the very existence of humanity and the rapid increase in the population together with consequential demands to sustain the population has resulted in the concreting of open lands, cutting down of forest, the filling up of lakes and pollution of water resources and very air which we breathe. However, there need not necessarily be a deadlock between developments on the one hand and the environment on the other objective of all laws on environment should be to create harmony between the two since neither one can be sacrificed at the altar of the other.”

Judicial Review

The concept of judicial review in India is based on US judicial review system. Judicial review provides the freedom of judiciary through that it maintains the concept of Constitutionalism in Constitution. In judicial review the judiciary exercises its power so that it can maintain the coordination among different organs of the State so as to enable them to work in the prescribed limits as provided by the Constitution. So through the power of judicial review the judiciary can check the legality of any enactment whether it is passed by the parliament or by the state legislation.

In India neither parliament nor judiciary are supreme, there is supremacy of Constitution of India which work on the principle of rule. In order to maintain the supremacy of the Constitution, the power of Judicial Review has been granted to the Judiciary. Various Articles in the Constitution guarantee the judicial review, such as Article 13 which provides

²AIR 2004SC 1834

that any law that contravenes the fundamental rights is void. Article 32 and 226 are the guarantor and protector of the fundamental right. In case of infringement person can directly approach the Supreme Court or to the High Court. Provisions for Judicial review in case of pre – constitutional legislations is provided under Article 372. Articles 131 to 136 confer powers on Supreme Court to adjudicate the matters between persons, between states or between union and states. Constitution of India also mandates that the judgments of the SC are binding on all courts.

The Supreme Court in Gopalan Case observed, *“in India it is the Constitution that is Supreme and that a statute law to be valid must in all cases be in conformity with the Constitutional requirements and it is for the judiciary to decide whether any enactment is Constitutional or not and if a legislature transgress any Constitutional limits, the court has to declare the law unconstitutional for the court is bound by its oath to uphold the Constitution.”*

In Keshvananda Bharti case, Justice Khanna observed that as long as the fundamental rights are the part of Constitution, the power of the judicial review has to be exercised in order to see that the guarantee provided by the constitution is working or not. He further observed that the power of the judicial review is an important part of the Constitution which cannot be ignored.

In *State of Rajasthan v. Union of India*³, Justice Bhagwati observed that, *“it is necessary to assert in the clearest terms particularly in the context of recent history, that the Constitution is Supreme lex, the permanent law of the land, and there is no department or branch of government beyond or above it. Every organ be it the executive or legislature or judiciary, derives its authority from the Constitution and it has to act within its limits of its authority. No one however is placed and no authority howsoever lofty can claim that it shall be the sole judge of the extent to its power under Constitution or whether its action is within the confines of such power laid down by the Constitution. This court is the ultimate interpreter of the Constitution and to this court is assigned the delicate task of determining what the power conferred on each branch of government, whether it is limited, and if so, what are the limits and whether any action of that branch transgresses such limits.”*

³AIR 1977SC1361

Expanded Locus Standi

The concept of judicial activism was flourished only after expansion in the rule of locus standi. It means that the court will not hear the party unless the person has a sufficient interest in the matter. But the Supreme Court lowered the standing barriers by widening the concept of the person aggrieved. Now any person can file a suit even though he or she hasn't interest in the matter but it must be related to public interest. After relaxing the locus standi, the Supreme Court and the High Court were starting treating the letters as a writ petition. In *Dehradun Quarrying Case*⁴, The Supreme Court received a letter from the Rural Litigation Kendra for stopping illegal mining. The Supreme Court treated it as a writ petition under Article 32 of the Constitution.

In *Mahesh R.Desai v. Union of India*,⁵ the apex court received a complained from the journalist that the coastline was being sullied by unplanned development that violates the central government guidelines. The court considered this letter as a Writ petition under Article 32 and issued notice to the concerned authorities in this behalf.

In *Subhash Kumar v. State of Bihar*⁶ the Supreme Court observed, “*Personal Interest cannot be enforced through the process of this court under Article 32 of the Constitution in the grab of public interest litigation. PIL contemplates legal proceedings for vindication or enforcement of fundamental rights on account of a group of a person or community which are not able to enforce their fundamental rights on account of their incapacity, poverty or ignorance of law. A person invoking the jurisdiction of this court under Article 32 must approach this court for the vindication of the fundamental rights of affected person and not for the purpose of vindication of his personal grudge or enmity. It is the duty of the court to discourage such petition and to ensure that the course of justice is not obstructed or polluted by unscrupulous litigation by invoking the extraordinary jurisdiction of this court for personal matters under the grab of the Public Interest Litigation.*”

Duty of State and Role of Judiciary in Environment Protection

As it was mentioned above, the elucidation pointed out by the Hon'ble Apex Court, that Constitutional Provisions, mainly Article 48A and 51A, (g) cast an obligation on the State as well as citizens respectively, to secure and enhance environmental conditions of the territory.

⁴AIR 1988 SC 2187,2195

⁵Writ Petition No. 989 of 1988

⁶AIR 1991 SC 420

Indeed it was agreed that Directive Principles of State Policy is non-binding, but Supreme Court can order the Government officials to strictly adhere with these principles.

In *Ratlam Municipality v. Vardhichand*⁷ the Apex Court considered that a mindful metropolitan board can't flee from the important obligation by arguing money related obligation. The Supreme Court gave headings to the districts, the state organization and statutory bodies to play out their obligation in the matter of sanitation, wellbeing and condition. It coordinated the evacuation of the disturbance. A comparative course was given on account of *LK Koolwal v. State of Rajasthan*⁸ wherein the solicitor had moved toward the court in the matter identifying with the pervasiveness of an intense sanitation issue in Jaipur asking the court to issue headings to the State to play out its mandatory obligations. The Supreme Court while guiding the region to expel the soil, and foulness from the city, seen that the upkeep of wellbeing, safeguarding of sanitation and condition is the statutory obligation of the region. The Court saw that the wellbeing dangers presented by the absence of sanitation and the resultant contamination will antagonistically influence the life of natives as it would add up to moderate harming. This would, if not checked, lessen the life of the nationals as a result of the dangers that would be made, along these lines disregarding Article 21 of the Constitution which is a basic right. In the *Indian Council for Enviro Legal Action v. Association of India*,⁹ identifying with the notice of the beach front zone directions, the court held that the authorization offices are under a commitment to entirely uphold the ecological laws; In the *Delhi Garbage case*¹⁰ the Court held that Government offices may not argue no availability of assets, deficiency of staff or different inadequacies to legitimize the non-performance of their commitments to entirely uphold natural laws. The case came up under the steady gaze of the court for non-execution of statutory obligation by the city specialists with respect to the accumulation, evacuation and transfer of refuse and other squanders in the city of Delhi, the Court held that the experts depended with the work of contamination control have been absolutely delinquent in the release of their obligations under the law and that they can't clear themselves of their obligations on the affection of money related and different constraints like wastefulness of staff individuals. The Court issued instructions to the Delhi Administration to play out its obligations. So as to guarantee that the upgrades would really occur, it additionally coordinated the Central Pollution Control Board (CPCB), a

⁷*Ratlam Municipality v Vardhichand*, AIR 1980 SC 1622

⁸*LK Koolwal v State of Rajasthan*, AIR 1988 Raj.2

⁹*Indian Council for Enviro Legal Action vs. Union of India (CRZ Notification)* 1996(5) SCC 281, 294, 301

¹⁰*Dr B L Wadhwa v Union of India (Delhi Garbage case)* AIR 1996 SC 2969,2976

statutory body, to arrange a thorough investigation of the subsequent advances that were being taken at regular intervals and to report the outcomes to the Supreme Court. Alluding to Article 51-A (g) in regards to the essential obligations under the Constitution, the Court expressed that it was the obligation of the Central Government to guide every single instructive establishment all through India to show exercises in school for at least one hour out of every week identifying with the security of the regular habitat, counting timberlands, waterways and natural life, and to disperse reading material regarding the matter free of expense to instructive foundations. On account of air contamination in Delhi, the Court decided that it was the obligation of the Government to guarantee that the air was not defiled by vehicular pollution. In the case¹¹ of harm to the Taj Mahal from air toxins from the Mathura Refinery, the court coordinated the formation of a Taj trapezium to direct exercises in connection to air contamination. The Court requested that the Government to find a way to embrace tidy up activities for re-establishing the whiteness of the marble of the Taj Mahal. In the previously mentioned open intrigue matters, the Supreme Court, in giving guidelines to the administration was acting in consonance with satisfying its sacred commitments. The Supreme Court gave a few guidelines to the local government to set up an institutional instrument for usage of laws and authorization of the directly to Condition

Directions for Establishing an Authority

On account of seaside states enabling enormous organizations to create prawn cultivation on a huge scale disregarding the Environment Protection Act, (EPA 1986) and non-implementation of the Coastal Regulation Zone (CRZ) notification,¹²the judiciary guided the Government to set up an Authority under the Environment Security Act, 1986 (EPA).

The Court selected the National Environmental Engineering Research Institute (NEERI) to examine the beach front conditions of eastern Coast of India, and submit its findings. It additionally coordinated laborers occupied with culture of shrimp at the prawn ranches ought to be conserved and that remuneration ought to be paid to them. In the Vellore Citizens Case¹³ the judiciary repeated that the Central Government must do things in consonance with Section (3) of the EPA. The bearing of the judiciary being revelatory in nature, the officials isn't bound by it. Up until now, a setup is not formed in a specialist, for execution of the EPA is being finished by the MoEF in agreement with the arrangements of the EPA, 1986.

¹¹*M.C. Mehta vs. Union of India* AIR 1997 SC 734.

¹²*S. Jagannath vs. Union of India* AIR 1997 SC 811.

¹³*Vellore Citizens Welfare Forum v Union of India* , AIR 1996 SC 2715,2721

Directions for Establishing Environment Courts

In 1987, the Indian judiciary while articulating on another standard of strict risk for perilous or characteristically hazardous exercises in the Oleum gas spill case¹⁴ supported the foundation of Environment Courts. The Supreme Court repeated the foundation of particular condition courts. In 1999, in *AP Pollution Control Board v Professor Nayudu*¹⁵ the Apex Court communicated that, the Supreme Court what's more, the High Court were encountering trouble in settling on the accuracy of logical and innovative suppositions. Particular Environment Courts were important to give legal and logical sources of info dispassionately as opposed to leaving convoluted issues to the officers drawn from the official. Again the course being explanatory, as a proposal, the Government was not bound by it however had the choice to think about the practicality and acknowledge it. Despite the fact that an activity was embraced by the MoEF in 1990 in conference with a few driving ecological NGO's and the Central and State Boards occupied with authorization of the contamination control laws and a draft was set up for setting up ecological courts all through the nation, it didn't see the light of the day.¹⁶

What developed after a drawn out period was a much weakened rendition of the first draft. The National Environmental Tribunal, 1995 and the National Environmental Redrafting Authority, 1997 were set up however both these establishments had constrained ward and for most part stayed on paper as it were. They were disbanded by the revoking of the constituent Acts when the National Environmental Tribunal (NGT) Act, 2010 was passed by Parliament. The NGT in its present frame is generally founded on the lines recommended by the Apex Court and has a statutory system for giving logical guidance and access to ecological equity. The previously mentioned mandate of the Supreme Court were given by method for precedents of how the Court was spearheading the use of global standards in ecological cases and in giving ways for the foundation of natural establishments and systems for successful usage of laws and great administration. The good faith of the 1990s was anyway fleeting. The Apex Court's all out negligence for the human privileges of networks influenced by super ventures and casualties of mass fiasco came as a stun to general society who by then had started to look up to the Supreme Court with elevated requirements. Two cases which drew out the disappointment of the Supreme Court in ensuring the human privileges of the general

¹⁴*M.C. Mehta vs. Union of India*: AIR 1987 SC 1086.

¹⁵*AP Pollution Control Board v Professor Nayudu* 1999 2 SCC 718

¹⁶ Personal Knowledge, as author was involved in the preparation of the draft (MOEF no.8(6)/86-PL)
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population influenced by vast improvement ventures and countless casualties of mechanical catastrophe are the Sardar Sarovar dam venture on waterway Narmada and the Bhopal Disaster Case. It goes to demonstrate that without an unmistakable managing approach; even the most elevated court in the nation can miss the mark concerning offering equity to the casualties of ecological mischief.

Tort and Judicial Response

Tort is a civil wrong which identifies the obligations between the parties even if there are no such contractual relations between them. In torts, person is liable for the breach of his own duty towards the other persons and damages are unliquidated. In India the courts still follow the English law of Tort which was adopted at the time of British rule. Majority of cases of torts related to environment fall under the category of negligence, trespass, nuisance or negligence.

The Supreme Court has played a remarkable role in handling the environmental issues in tort. It interprets the old principles of tort with wider explanation that gives a new dimension to the environmental issues. Though there is no provision for punitive punishment in tort cases but it doesn't mean that tort is not play an effective role in environmental development. Various judgments clearly speak the recent trends in the tort law as an instrument of social change in environmental hazard. It also shows that the judiciary now imparting the justice without influence of English law. The concept of Absolute Liability which was evolved by the case of *M.C. Mehta v. Union of India*¹⁷ is a great example of judiciary's role in law of tort. In this case oleum gas leaked from the industry in some Delhi's areas and affected many people there. The court observed that the defendant would be liable even though they have no fault. Basically the concept of absolute liability does not accept any exceptions which are mentioned in Strict Liability.

In this case the Chief Justice Bhagwati said, "*the large and more prosperous the enterprise, the greater must be the amount of compensation payable by it for the harm caused of an account of accident in the carrying on the hazardous or inherently dangerous activity by enterprise.*"

In *Indian Council for Enviro-Legal Action v. Union of India*¹⁸ the Court not only applied the Principle of absolute liability but also applied the principle of Polluter Pay. The court also

¹⁷AIR 1987 S.C.1086

¹⁸AIR 1996SC 1466

explained the logic for fixing the absolute liability on the industries which are dealing with hazardous substances.

In *M.C.Mehta v. Kamal Nath and Others*¹⁹ the Apex Court held, *“Pollution is a civil wrong. By its very nature, it is a tort committed against the community as a whole. A person therefore, who is guilty of causing pollution, has to pay damages for restoration of the environment and ecology. He has also to pay the damages to those who have suffered loss on account of the act of the offender. The powers of this court under Article 32 are not restricted and it can award damages in a PIL or a writ petition as has been held in the series of decisions.”*

There are many more cases in that Supreme Court and High Court provides relief in private nuisance. In India there is no such code for tort related matters, but the judiciary tackles the matters in a very positive manner and provided the relief in all matters including environmental issues. This active role of judiciary gave a new direction to the environmental jurisprudence with new trends and principles.

Critical Analysis

The Indian judiciary has managed a broad scope of matters identifying with condition which were filled U/A 32, or then again by method for offers under Art 136 against the decisions of the High Courts. The most critical improvement in issues identifying with condition is the imaginative translation given by the Apex Court for directly to a clean also, solid condition' inside the ambit of 'directly to life,' a fundamental right under Article 21 of the Constitution of India. The Apex Court advanced imaginative strategies for access to equity by common residents and translated the current arrangements in the lawful framework to build up the statute with regards to condition security.²⁰

Open energetic individuals from the common society regularly moved toward the Apex Court to look for an order to force the administration to act and satisfy its commitments, and to authorize laws to capture infringement even in issues, for example, the evacuation of refuse. The Apex Court thusly, has coordinated the specialists worried to submit to the laws identifying with condition, be it a focal service, state government or a metropolitan body. At times the Supreme Court even went to the degree of expressing that attainable and reasonable advancements were accessible to remove the harm caused to the condition because of such infringement. While observing its very own bearings, the Apex Court found sometimes that

¹⁹AIR 2002SC 161

²⁰*Vineet Kumar Mathur v. Union of India and others,*

those in the official in charge of upholding the law were themselves ridiculing the standing instructions in agreement with the violators.

The dynamic inclusion of the judiciary in social issues is seen by a few researchers as principally judge-drove and judge-incited prosecution. The Apex Court kept the majority of the matters dynamic to keep the official from getting to be remiss or disregarding consistence, and has requested that the experts submit reports intermittently, which can be at regular intervals, at regular intervals or each month on the issues examined. Some stretch of time, a few examinations is an insignificant custom for they are not considered and not even is their suggestions actualized. The Apex Court has been reprimanded for growing the area of rights under Article 21. The rights counted by the Judiciary by development of Article 21, aside from a contamination free condition, incorporate a directly to quick preliminary, directly to safeguard, directly to nourishment, safe house, wellbeing and instruction. These rights are alluded to as the new regularizing routine. It is contended that in doing as such, the point of the Apex Court has been to grow its formal ward as opposed to accomplishing genuine targets. An issue brought by specialists with regard to the legal activism is regardless of whether the courts have been meddling excessively in the working of the official furthermore, regardless of whether it tends to be a substitute for official effectiveness.

The quickly expanding number of petitions under the watchful eye of the Courts, the disputed method taken by judiciary and individual has made an uncertainty about the viability of the PILs. The different inquiries being asked in such manner the courts sufficiently equipped to interfere in regions that were not inside their legal capability. There are the correct sort of individuals accessible in the legal executive to take choices relating to the job of the official and are they sufficiently productive to go up against new situations when they are as of now loaded with a vast overabundance of cases. Without perpetual free statutory boards of natural researchers to prompt the higher legal executive are its individuals able and predictable in their methodology.

Conclusion

It is obvious that there is abundance of established and authoritative arrangements on condition security in India. In any case, in spite of these enactments, guidelines and controls, insurance and safeguarding of the earth is as yet a problem that needs to be addressed. Consequently there is a requirement for a compelling and proficient implementation of the protected order and the other natural enactments. A solid establishment for ecological statute in India helped in the security and conservation of its condition as well as its kin. The Copyright © 2021, *Scholarly Research Journal for Interdisciplinary Studies*

synergistic methodology, operational adaptability, court's follow up on its break orders and cutting edge approach makes individuals feel increasingly safe as they are sure of getting alleviation for natural harm through the courts. So it is very true the emergence of environmental jurisprudence started in India only after active participation of the judiciary in environmental matters.

CRYSTALLIZATION OF POLLUTER PAYS PRINCIPLE- ANALYSING THE INTERNATIONAL AND DOMESTIC INSTRUMENTS AND JUDICIAL PRECEDENTS

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Abstract

The present paper is an attempt to understand the scope and application of the Polluter Pays Principle by analysing the crystallization of the principle through successive international and domestic legal instruments and judicial precedents.

The author to understand and analyze the evolution of the PPP, has divided the present paper into five parts as; Part 1- Introduction and Part 2) Development on the international sphere, Part 3) judicial decisions, Part 4) Indian legislations and Part 5) Conclusion.

The first part deals with the relevant definitions and the second part deals with the multilateral and regional conventions along with soft treaties such as the Rio Declaration which led to the Polluter Pay Principle being recognised as a general principle of international law. The author has also elucidated important judgments of foreign courts and jurisdictions in order to understand how different legal systems have adopted the Polluters Pay Principle. The third part deals with the important judicial pronouncements of the Hon'ble Supreme Court of India which led to the Polluters Pay Principle being recognised as a well-settled principle of environmental law in India and the fourth part deals with the National Green Tribunal Act, 2010 and statutory duty on the National Green Tribunal to apply the Polluter Pay Principle when it passes order or award.

Keywords: *Polluter Pay Principle-Compensation-Reparation – Remediation - Absolute Liability*



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"If anyone intentionally spoils the water of another, let him not only pay damages but purify the stream or cistern which contains the water." – Plato

Polluter Pay Principle (hereinafter referred to as "PPP") has been one of the pillars of Environmental Law Jurisprudence in India and the International sphere. The development of the Polluters Pay Principle has marked the most significant turn with the goal of protection of the common natural heritage of the world, especially with regards to the recognition that polluters should pay for the environmental damage caused consume rate to the loss of wildlife, habitat, natural resources among others.

The importance of the principle can be best understood from the Preamble of Rio Declaration of 1992, whereby, it was recognised that compensation should be paid for the

environmental damage caused, to protect the integrity and interdependent nature of the earth eco-systems.

The enshrinement of PPP, in the international conventions and domestic legislation, has made it one of the most significant principle of environmental law doctrines, along with the principle of preventive action (“precautionary principle”), global commons, principle of sustainable development, Common but differentiated responsibilities and The Prohibition of Transboundary Environmental Harm.

1) Introduction

Pollution, in very simple terms, can be termed as contamination of the water, land, air, or/and natural resources by harmful or hazardous substances. This definition of pollution has to be understood in the context of what constitutes the environment. The *National Green Tribunal Act, 2010*¹ (hereinafter referred to as “The Green Act, 2010”) has defined the “environment” as an inclusive and exhaustive term which can be divided into three parts;

A) “*Environment as including land, water and air*”- This is the basic and most recognized definition of environment.

B) “*As its interrelationship with human beings*”- This recognizes that human beings are also affected by environmental damages, and there are certain communities that are directly linked with their surrounding natural resources such as Tribal groups, indigenous people among others.

C) “*As its interrelationship with other living creatures, micro-organism and plants*”- This part recognizes that environment is not restricted to wildlife and flora, but micro-organisms such as fungi, also play an integral role in the environment

D) “*Property*”- This is inclusive of property rights over natural resources such as mines & minerals among others.

Rio Declaration on Environment and Development, 1992 (hereinafter referred to as “Rio Declaration”), which was promulgated in the aegis of *The United Nations Conference on Environment and Development, 1992* was the first major international document to enshrine the PPP under Principle 16 of the document. Hence, the doctrine can be understood in two-fold ways, firstly, environmental costs should be internalized in costs of goods and services produced, and secondly, the polluters should undertake to bear the costs of pollutions taking into account the larger public interest.

¹ *The National Green Tribunal Act, 2010* (India).

Thus, PPP Doctrine can be understood as a common-sense approach, which provides that if the public authorities have taken reasonable measures to prevent or mitigate potential or actual environmental damages, then the entity responsible for the environmental damage should bear the cost of restitution or rectifying the damage, pollution or loss caused to the environment.

Over the decades, the scope and application of the principles have grown multifold, i.e., in the initial decade of the 1970s, PPP was limited to covering the reasonable costs associated with control measures and environmental damage or pollution prevention. However, with the development in the law regarding state responsibility and transboundary harm, the PPP extended to cover the costs arising from liability due to environmental damage or pollution. Further, the notion of liability has been extended from the source of the environmental damage or pollution to the impact of the goods or service during its whole life cycle, which is known as “*extended producer responsibility*”.

2) Development in the International Sphere

Compensation as a form of reparation for the damage to the environment caused is a principle that dates as far back to 1938, in the *Trail Smelter Case*², a transboundary pollution arbitral dispute between the United States and Canada. A smelter plant that was owned by a Canadian Corporation emitted sulfur dioxide fumes, which were hazardous and were causing damage to forests, crops, and soils across the State of Washington in the United States. A three-member arbitration tribunal was established to decide the dispute among the two members. The tribunal awarded damages to the United States (Plaintiff) for the environmental harm that had ensued from the Canadian entity (Defendant) actions by holding that “*no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein when the case is of serious consequence and the injury is established by clear and convincing evidence*”.

However, it was only in 1972, that the Organisation for Economic Co-operation and Development (hereinafter referred to as “OECD”), introduced the PPP as a distinct and recognizable principle for the first time in *Guiding Principles concerning International Economic Aspects of Environmental Policies*³, whereby the state parties were encouraged to internalizing the costs of pollution and environmental damage in the prices of goods and

² *Trail smelter case (United States vs. Canada)*, 3 UNRIAA, p. 1905, 1952.

³ Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies, May 26, 1972, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0102>.
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services by allocating the costs of pollution prevention. Further, the polluter entity has to undertake the expenses, as decided by the public authority to maintain the environment in an acceptable state. A significant aspect of this recommendation by the OECD was that it took into consideration the economic interests of the states, by encouraging states to not provide polluting entities with state subsidies which would have the potential of distorting international investment and trade. Hence, this recommendation was the basis of the PPP as recognized in the subsequent international conventions and found in the domestic legislation.

In 1989, the OECD further expounded on the polluters pay principle in the *Recommendation of the Council concerning the Application of the Polluter-Pays Principle to Accidental Pollution*⁴, whereby, state parties were encouraged to internalize the costs of reasonable measures used to control accidental pollutions risk arising due to hazardous operations or materials. Thereafter, in 1992, for the time, the PPP was widely acknowledged and accepted by the nations in the Rio Declaration.

The regional conventions concerning specific environmental issues have also adopted the PPP. For example, the parties to the *Helsinki Convention, 1992*⁵ have undertaken to make the polluting entities pay for the true costs of the activities that result in harm to the marine eco-system of the Baltic Sea. Further, the parties to the *Barcelona Convention, 1976*⁶ obligate the state parties to adopt the PPP in their domestic legislation. Most recently, the *Agreement on Cooperation on Marine Oil Pollution, Preparedness, and Response in the Arctic, 2016*⁷ has enshrined the PPP concerning the ship-based pollution being caused in the Arctic Region.

The author would bring it to the forefront that, that it is not only the international and regional conventions that have led to the development of PPP, but significant national judicial decisions have also played an important role in this regard.

For example, the European Court of Justice (hereinafter referred to as “ECJ”, in the *Raffinerie Mediterranee* case⁸, interpreted PPP as an extension of environmental liability

⁴ Recommendation of the Council concerning the Application of the Polluter-Pays Principle to Accidental Pollution, July 7, 1989, <https://legalinstruments.oecd.org/public/doc/38/38.en.pdf>.

⁵ Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention), 1992, January 17, 2000, <https://helcom.fi/about-us/convention/>.

⁶ Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention), 1976, February 16, 1976, https://ec.europa.eu/environment/marine/international-cooperation/regional-sea-conventions/barcelona-convention/index_en.htm.

⁷ Agreement on Cooperation on Marine Oil Pollution, Preparedness, and Response in the Arctic, 2016, March 25, 2016, <https://oaarchive.arctic-council.org/handle/11374/529>.

⁸ *Raffinerie Mediterranee (ERG) SpA, Polimeri Europa SpA and Syndial SpA vs. Ministero dello Sviluppo economico & Oths*, C-379/08.

which arises due to prevention and remedying of damage caused to the environment. The court had held that conditions of environmental liability can be imposed on the operators to undertake environmental recovery works even on the lands not affected by their works if it was previously decontaminated or had never been polluted. This condition was necessary to prevent further environmental damage to the adjacent lands of the operators' works of operation. Further, in the *Erika Oil Spillage* case⁹, the ECJ in a preliminary ruling held that oil spilled from the tankers would be “waste” as covered under the Waste Framework Directive (75/442/EC) of the European Community Guidelines, and therefore, under PPP, Total, the entity which was the producer of the oil and which owned the oil tankers responsible for the spillage, was responsible for was under the liability to pay for the compensation for the same.

In the *North Fraser Harbour Commission Case*¹⁰, the Supreme Court of Canada upheld the retroactive liability for remediation of contaminated property, even if the pollution was caused by a previous entity.

Further, the above-mentioned conventions and cases are evidence, that the Polluters Pay Principle is being increasingly recognized by the international community through domestic legislation and legal instruments, and thus, under Article 38 of the Charter of the International Court of Justice (hereinafter referred to as “ICJ”), which defines the sources of law, the PPP can be recognized as a general principle of law

This would be best evidenced by the judgment of ICJ in *Costa Rica versus Nicaragua*¹¹, whereby held that the recognized international law principle, that a breach of an obligation gives rise to an “*obligation to make reparation inadequate form*”¹² applies to environmental damage and pollution cases, i.e., such cases of eco-system damage are compensable. Further, the main point of note, as per the author, is that the ICJ recognized that “*damage to the environment, and the consequent impairment or loss of the ability of the environment to provide goods and services, is compensable under international law*”. Thus, the wrongful acts of the state would result in the liability to make full reparation for the damages or disturbances caused to the ecosystem.

⁹ *Commune de Mesquer vs. Total France SA, Total International Ltd*, C-188/07.

¹⁰ *North Fraser Harbour Commission vs. Environmental Appeal Board*, 2005 SCC 1.

¹¹ *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) and Construction of Road in Costa Rica along with the San Juan River (Nicaragua v. Costa Rica)*, Judgment, I.C.J. Reports 2015, p. 665.

¹² *Factory at Chorzów*, Jurisdiction, Judgment No. 8, 1927, P.C.I.J., Series A, No. 9, p. 21.

3) Indian Judiciary

The Indian Judiciary had adopted and crystallized the principle of Polluters Pay Principle in the 1970s as part of their environmental activism and growing environmental awareness amongst the public. This was in part due to rampant and indiscriminate development across the Indian Landscape which was causing irreparable harm to the communities depended on the natural resources along with a lack of legislative framework or a specialized tribunal that could adjudicate on issues of compensation arising due to environmental damage.

Hence, in the case of the *Indian Council for Enviro-Legal Action* case¹³, the Supreme Court adopted the principle of PPP as part of the growing jurisprudence of environment law of India and held that entities are liable to make reparations or compensation for the damage caused to the ecosystem if they are carrying on an inherently dangerous or hazardous activity, irrespective of whether the entity undertook reasonable precautions to prevent or mitigate the harm so caused.

In the *Vellore Citizens' Welfare Forum* case¹⁴, the Hon'ble Apex Court expanded the application of PPP to include within its ambit compensation to be made to the victims of environmental pollution along with the remediation needed to restore the environmental degradation and reverse the effects of the damaged eco-system caused due to inherently dangerous or hazardous activity.

In *The Oleum Gas Leak* case¹⁵, the Hon'ble Supreme Court any harm that the entity which undertakes or dangerous activity is liable to make reparations for all the harm or damage that ensues to the environment, irrespective of the level of reasonable care taken to prevent or mitigate the harm or damage caused. Further, in the *M. C. Mehta* case¹⁶, The Hon'ble Apex court had held that pollution caused to the eco-system is a tort that would entail civil liability. Thus, damages would lie to pay for the restoration of the affected ecosystem.

4) Legislative Framework

The Polluter Pays Principle is enshrined in the constitutional principles because, PPP does not merely provide for compensation for pollution or environmental damage, it also obligates state authorities and private entities to avoid the pollution or environmental damage at the first instance. Hence, "life" as guaranteed under Article 21 not merely contemplate bare

¹³ *Indian Council for Enviro-Legal Action vs. Union of India*, 1996(3) SCC 212.

¹⁴ *Vellore Citizens' Welfare Forum vs. Union of India*, 1996(5) SCC 647.

¹⁵ *The Oleum Gas Leak case (M.C. Mehta vs. Union of India)*, AIR 1987 SC 1086.

¹⁶ *M. C. Mehta vs Kamal Nath & Ors*, (1997) 1 SCC 388.

minimum existence, but also includes the right to live in a healthy, safe and clean environment. Thus, the States are obligated to prevent serious, significant, or irreversible environmental damages and if any harm is caused by the private or public actors, then damages and compensations should follow the same.

In consonance with the Constitution, the legislation specifically incorporated PPP in the Green Act, 2010. The National Green Tribunal (hereinafter referred to as “Green Tribunal”) is under a statutory duty to apply the PPP at the stage of passing the order or award under Section 20. Further, Section 15 provides for “restitution and restoration” of the degraded environment, and the “person responsible” under section 17 is liable to pay compensation or relief for the damages to the environment that accrues from an accident or harmful impact of any business activity.

5) Conclusion

Environmental degradation that is arising due to unsustainable development is one of the most pressing threats to the ability of present and future generations to enjoy the right to a healthy, safe and clean environment. The right to life and the right to live with dignity, depends, steps taken to preserve the environment and the eco-system from unsystematic harmful activities, and thus to protect the environment against harm and pollution caused by private or public entities, they must pay the restitution costs to restore the environment and prevent further degradation.

The Polluter Pay Principle is not merely an environmental law doctrine, but a statutory duty on the Government under the Green Act and a general principle of international law, emanating from international conventions and domestic legal instruments. Hence, the present study was an attempt to understand the origin and evolution of the Polluters Pay Principle from its beginnings in the *Trail Smelter Case* (1938) till the present developments.

ETHICAL CONCERNS ON ENDANGERED SPECIES: SUSTAINABLE MANAGEMENT

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Abstract

The country's diverse physical features and climatic conditions have resulted in a variety of ecosystems such as forests, wetlands, grasslands, desert, coastal and marine ecosystems which harbour and sustain high biodiversity and contribute to human well-being. Extensive biodiversity loss in the past decades has spared neither developed nor developing countries. The extinction of species, over-harvesting, introduction of exotic species, habitat loss, pollution and climate change has led to an increased risk portfolio for marginalised communities. Global biodiversity is being lost much faster than natural extinction due to changes in land use, unsustainable use of natural resources, invasive alien species, climate change and pollution among others.

It is essential to make the individuals aware of cultural aspects, ethics, values, management and the sustainability of the natural resources. The main purpose of this research paper is to understand the significance of cultural and the ethical issues associated with biodiversity conservation

Habitat conservation is the key solution to conserve biodiversity. Lot of efforts has been done to encourage forestation and decrease deforestation and practices has been done in many areas. Similarly, by discouraging the pet trades, over shooting as well as hunting by applying different banes, marine pollution by different laws and regulations, and public awareness are the main concerns.

It is essential to make the individuals aware of cultural aspects, ethics, values, management and the sustainability of the natural resources. This research paper is to understand the significance of Anthropocentric concerns for the environment which are narrowly aimed at preserving the welfare of humans, while biocentric concerns are oriented toward protecting non-human organisms and nature as a whole for wildlife conservation. This article covers threatened and endangered Indian wildlife species, its key threats and conservation programmes being carried out to revive wild populations.

Keywords: *Conservation, Endangered species, threatened species, biodiversity*



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Introduction

India, a megadiverse country with only 2.4% of the world's land area, accounts for 7-8% of all recorded species, including over 45,000 species of plants and 91,000 species of animals.

The country's diverse physical features and climatic conditions have resulted in a variety of

ecosystems such as forests, wetlands, grasslands, desert, coastal and marine ecosystems which harbour and sustain high biodiversity and contribute to human well-being.

Man vs Environment

The current rate of Climate Change has an incredible impact on everything on the planet, from plants and humans to the atmosphere itself. It's no secret that raising temperatures and melting ice caps have greatly reduced the habitat available for arctic animals such as Polar Bears and Arctic Foxes. This changing climate further adds to the degradation of habitats all around the world by reducing biodiversity, altering seasonal migration patterns, and creating environments prone to wildfires, floods, and cyclones.

Certain activities of human have become a major threat to the planet's biodiversity. Humans tend to invent such technologies which manipulate and exploit earth's environment to support their ever-growing population. This raises a concern as with incremental increase of human population, lesser and lesser other species will flourish threatening our biodiversity.

Wildlife populations have fallen by more than two-thirds in less than 50 years, according to a major report by the conservation group WWF. The report says this "catastrophic decline" shows no sign of slowing. And it warns that nature is being destroyed by humans at a rate never seen before.

While talking about the increasing number of endangered species, D. Raghunandan, Scientist, Delhi Science Forum said, "It's high time we learn that humans are not at the centre of the existence of this beautiful planet; we are just another piece in this brilliant jigsaw that makes our planet. For the sake of the health and survival of our future generation we have to focus on restoring the balance and conserve the Earth's flora and fauna. The warning that has been raised again and again is that we have absolutely no time to wait; whatever we do now is going to determine the future of humanity."

Inside protected areas, anthropogenic activities are mostly controlled however, approximately 86% of the earth's land is outside of protected areas. For the development of effective conservation strategies, it is crucial to identify the spatial location, suitable habitat, and potential distribution of species needing protection, as well as to understand the anthropogenic influences that threaten their survival.

Extincting Species: Across the Globe

An endangered species is a type of organism that is threatened by extinction. The International Union for Conservation of Nature (IUCN) keeps a "Red List of Threatened Species".
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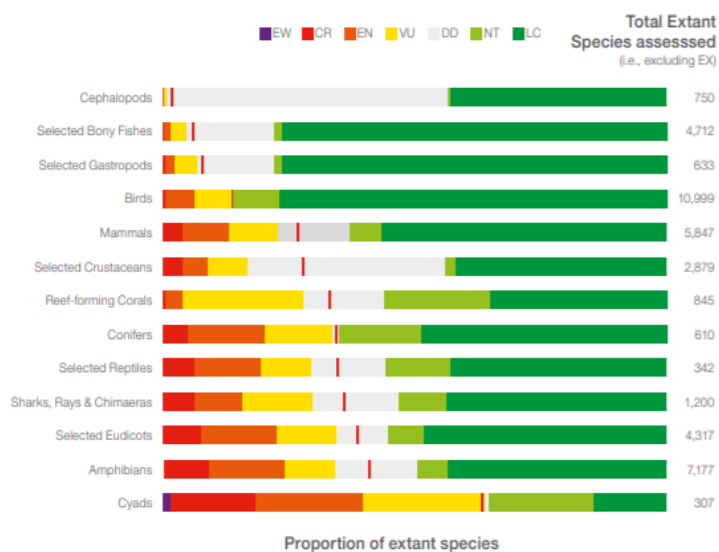
Species.” The Red List defines the severity and specific causes of a species’ threat of extinction. The Red List has seven levels of conservation: least concern, near threatened, vulnerable, endangered, critically endangered, extinct in the wild, and extinct. Each category represents a different threat level.

Although extinctions have occurred throughout history, there is alarming concern among biologists that the current rate of extinctions is on par with the fastest declines of biodiversity the planet has ever seen. The exact rate of current extinctions is difficult to quantify, however, there is consensus that the rate has been accelerating rapidly as the direct result of human alterations to the global environment.

At WWF-India, all our six priority species – inhabiting the different landscapes and forests of our extremely diverse country – are listed as ‘threatened’ by the IUCN. Four of these – the Red Panda, the Bengal Tiger, the Ganges River Dolphin and the Asian Elephant are endangered – while the Snow Leopard and the Greater One Horned Rhinoceros are considered vulnerable.

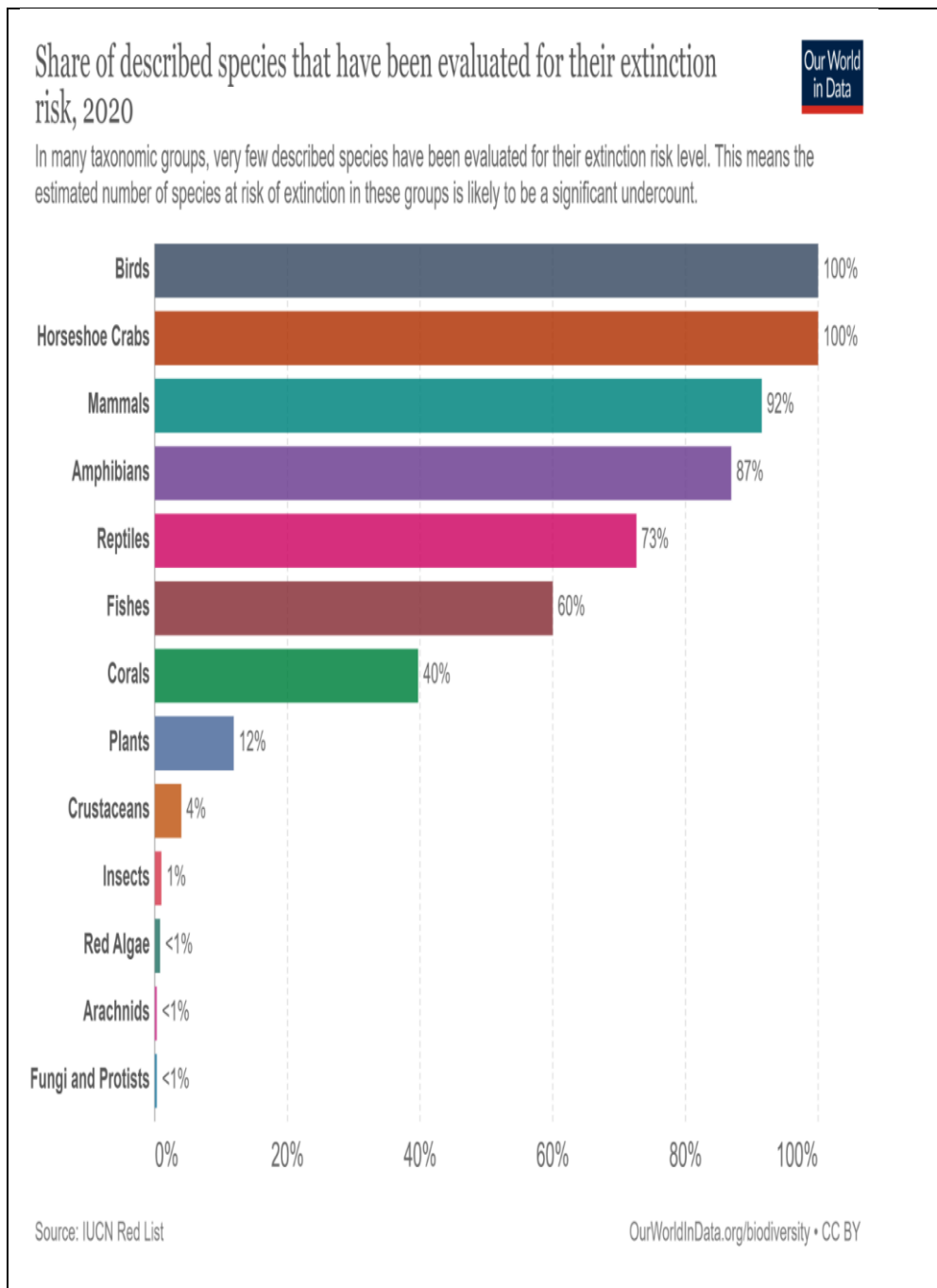
The Extinction Risk of Species

assessed in each category for the more comprehensively assessed (i.e., at least 80% of the species in the group has been assessed) groups containing ≥150 species



Proportion of species threatened with extinction in different taxonomic groups that are comprehensively assessed for the IUCN Red List. Species are grouped into classes (with the exception of reef-forming corals, which includes species from classes Hydrozoa and Anthozoa), and are ordered according to the vertical dark red lines, which indicate the best estimate for the proportion of extant species considered threatened, assuming that Data Deficient species are equally as threatened as non-Data Deficient species. The numbers to the right of each bar represent the total number of extant species assessed for each group. Taxonomic subsets included in the groups labelled ‘selected’ are detailed at <https://www.iucnredlist.org/resources/summary-statistics>

Source: https://nc.iucnredlist.org/redlist/resources/files/1630480997IUCN_RED_LIST_QUADRENNIAL_REPORT_2017-2020.pdf



Causes for Extinction

Evolution theory by Darwin states about the concept of survival of the fittest. But the shrinkage is quite alarming bringing us to the cause of extinction of species.

Habitat Loss

Habitat loss—due to destruction, fragmentation, or degradation of habitat—is the primary threat to the survival of species native habitat. Habitat degradation occurs when the quality

of a region is so low that it cannot support its own ecosystem, such as environments devastated by wildfires, over-pollution, or the introduction of invasive species.

The Florida panther once ranged throughout the south-eastern United States, but now survives in a tiny area of South Florida representing just 5 percent of its former range. It was listed as an endangered species in 1967 because of habitat destruction and fragmentation through urban sprawl. Large numbers of panthers died as the expanding network of roads connecting Florida's rapidly growing human population spread throughout its range. As of 2021, most estimates place the present-day population at around 200.

Industrial Revolution

Our increased consumption needs, which have led to an increase in many different forms of pollution, such as acid rain, water pollution, air pollution and other kinds types of pollution, can harm many species. If they are unable to adapt to the higher levels of pollution, they will be threatened with extinction.

Peregrine Falcons showed this danger explicitly when their populations plummeted due to the use of the pesticide DDT. The birds fed on fish and small mammals affected by DDT in their environment, and the chemicals within their prey built up inside the falcons through bioaccumulation. This caused sickness in Peregrine Falcons and weak eggshells in breeding females; reproductive success plummeted, and the birds became an endangered species.

Overexploitation and Poaching

Overexploitation and Poaching are two colossal supporters to species endangerment, both of which include the intemperate utilize and pulverization of a species. Overexploitation is when a species is utilized in an unsustainable way, to the point that the characteristic birth or regrowth rate is less than the rate of utilize. Additionally, poaching is the unlawful chasing, capturing, or slaughtering of natural life, most of which are beneath government security as helpless species. Oftentimes these creatures are focused on for their pelts, horns or ivory, organs, teeth, bones, and carcasses, which are utilized for unlawful utilization as medication or basically as a sign of riches & status.

Some of the world's most treasured animals including the rhinoceros, Western gorilla, and Chinese pangolin are illegally hunted for their body parts. The decline of some species of marine vertebrates, such as certain whales, can be attributed largely to commercial overexploitation.

Overexploitation is the biggest threat. Nearly three-quarters (72%) of the studied species – that's 6,241 of them – were under pressure from hunting, fishing or logging of forests. Agriculture – which includes arable farming, livestock, timber plantations and aquaculture – was also a massive threat. Nearly two-thirds (62%) of species were affected.

Climate change

Climate change will be the fastest-growing cause of species loss. Climate change, alongside factors like land degradation and habitat loss, is emerging as a top threat to wildlife around the globe, the reports suggest. In Africa, it could cause some animals to decline by as much as 50 percent by the end of the century, and up to 90 percent of coral reefs in the Pacific Ocean may bleach or degrade by the year 2050.

Species are already being impacted by anthropogenic climate change, and its rapid onset is limiting the ability of many species to adapt to their environments. Climate change is currently affecting 19% of species listed as threatened on the IUCN Red List of Threatened Species™, increasing the likelihood of their extinction. The Bramble Cay melomys (*Melomys rubicola*) is the first mammal reported to have gone extinct as a direct result of climate change. Previously found only on the island of Bramble Cay in Great Barrier Reef, its habitat was destroyed by rising sea levels.

Warmer temperatures during egg incubation are causing imbalanced female to male sex ratios among Endangered green sea turtles (*Chelonia mydas*), with females accounting for 99% of newly hatched turtles on some nesting beaches. Genetic changes attributed to climate change include hybridisation – interbreeding as species' habitats change – affecting species such as the common toad (*Bufo bufo*) and green toad (*Bufo balearicus*) in southern Italy.

Ethical Concerns on Endangered Species

Few persons doubt that humans have obligations to endangered species. People are helped or hurt by the condition of their environment, which includes a wealth of wild species, many of which are currently under threat of extinction. Whether humans have duties directly to endangered species is a deeper question, part of the larger issue of biodiversity conservation, but many believe so. The United Nations World Charter for Nature states that, "Every form of life is unique, warranting respect regardless of its worth to man." The Biodiversity Convention affirms "the intrinsic value of biological diversity." Both are signed by over a hundred nations.

It might seem that for humans to terminate species now and again is quite natural. Species go extinct all the time. But there are important theoretical and practical differences between natural and anthropogenic (human-generated) extinctions. In natural extinction, a species dies when it has become unfit for its habitat, and other species appear in its place; this is a normal turnover. By contrast, artificial extinction shuts down speciation. One opens doors, the other closes them. Humans generate and regenerate nothing in this extinction; they dead-end these lines. Relevant differences make the two as morally distinct as death by natural causes and murder.

Biocentrism

The reasoning of biocentrism holds that all life merits rise to ethical thought and has break even with ethical standing and amplifies inalienable esteem to all living things. It is an understanding of how the soil works, especially because it relates to its biosphere or biodiversity. In this way, biocentric morals calls for a re-examining of the relationship between people and nature. This point of view is exceptionally much contrary to Anthropocentrism which may be a human-centred framework.

Biocentrism comprises of at slightest two subjectively unmistakable states of mind: To begin with, biocentrism can stem from a crave to maintain a strategic distance from harming conscious creatures (e.g., harboring concerns around slaughtering creatures). Moment, biocentrism can stem from a want to maintain immaculateness in nature (e.g., harboring concerns around abusing the sacredness of nature). Avoiding hurt and protecting virtue have been distinguished as two isolated shapes of ethical concern that depend on practically unmistakable frameworks of cognitive and passionate processing. Therefore, the concept of biocentrism possibly clouds a mentally critical qualification within the naturalist attitudes.

Anthropocentrism versus Biocentrism

Anthropocentric concerns for the environment are narrowly aimed at preserving the welfare of humans, while biocentric concerns are oriented toward protecting non-human organisms and nature as a whole.

While anthropocentrism can sometimes lead to pro-environmental attitudes and actions, biocentrism is more reliably and robustly related to environmentalism, both for abstract values and for concrete behaviours. So, we are able say that anthropocentrism promotes the conservation of the environment as a implies to a conclusion instead of a conclusion in

itself. In any case, biocentrism treats environmentalism as an ethical basic autonomously of its effect on human flourishing.

Supreme Court's Biocentric Interpretation of Article 21 in the Past Supreme Court in the case of T.N. Godavarman Thirumalpad v Union of India (2002) has pointed out two salutary principles governing environment. They are:

1. Principle of Sustainable Development
2. Precautionary Principle –governments and concerned authorities must anticipate, prevent and attack causes for environmental degradation.

The Court held that Convention on Biological Diversity having been acceded to by India, the government should in the absence of compelling reasons keep in view the international obligations while exercising its discretionary powers under The Forest (Conservation) Act. Supreme Court has also taken cognizance in number of cases of various environmental problems and has given necessary direction to state for preservation of environment. In giving such directions, the Court has relied on Directive Principles as those contained in Article 47 and Article 48A along with Fundamental Duties under Article 51A(g).

Conservation of Biodiversity: National International Perspective

India is a signatory to several major international conventions relating to conservation and management of wildlife. Some of these are Convention on Biological Diversity, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on the Conservation of Migratory Species of Wild Animals etc. Financial and Technical assistance is provided to State/Union Territory Governments for protection and Management of Protected Areas as well as other forests under various Centrally Sponsored Schemes.

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species.

Widespread information about the endangered status of many prominent species, such as the tiger and elephants, might make the need for such a convention seem obvious. But at the time when the ideas for CITES were first formed, in the 1960s, international discussion of the regulation of wildlife trade for conservation purposes was something relatively new.

Because the trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international cooperation to safeguard certain species from over-exploitation. CITES was conceived in the spirit of such cooperation.

The Ministry of Environment and Forests, Govt. of India has recently constituted a special CITES Cell within the Ministry to help strengthen the enforcement of the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) regulations in the country. The new cell is meant to assist in the technical, administrative and legal functioning of CITES implementation in India. It also aims to act on various CITES decisions taken at the CITES Conferences of Parties and respond to requests from the CITES Secretariat. It is expected that this new body will better aid efforts to halt the exploitative trade in endangered species that is threatening the ecological security and integrity of the country. The new cell has ten members with two NGO representatives including the Head of TRAFFIC India.

India, being a CITES Party, actively prohibits the international trade of endangered wild species and several measures are in place to control threats from invasive alien species (e.g. certificates for exports, permits for imports, etc.).

India has proposed to remove rosewood (*Dalbergia sissoo*) from Appendix II of CITES. The species grows at a very fast rate and has the capacity to become naturalised outside its native range, it is invasive in other parts of the world as well.

The regulation of trade in the species is not necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.

India has also proposed to transfer small clawed otters (*Aonyx cinereus*), smooth coated otters (*Lutrogale perspicillata*), Indian Star Tortoise (*Geochelone elegans*) from Appendix II to Appendix I, thereby giving more protection to the species. The proposal also includes inclusion of Gekko gecko and Wedgefish (*Rhinidae*) in Appendix II of CITES. The Gekko gecko is traded highly for Chinese traditional medicine.

Steps Taken by Government for Biodiversity Protection

Government is working on various biodiversity protection steps:

- i. The Wildlife (Protection) Act, 1972, was enacted by central government for the protection of wildlife and also provides for punishment for hunting of specified fauna specified in the schedules I to IV thereof.

- ii. The wetland conservation and management rule 2010 specifies the activities which are harmful to the wetlands. It includes activities such as industrialization, construction activities, dumping of untreated sewage and solid waste, reclamation etc. The wetland rules prohibit these activities in the wetlands.
- iii. The Centrally Sponsored Scheme of National Plan for Conservation of Aquatic Eco-System envisages halting and reversing the continued degradation and loss of wetlands in the country and ensuring their conservation and integrated management by promoting a cross sectoral planning and decision making.
- iv. The Wildlife Crime Control Bureau envisages attaining excellence as intelligence and enforcement agency, matching international standards in the field of wildlife crime intelligence in its core capabilities, functioning as one team integrated into the intelligence community. It aims to conserve the wildlife wealth by proper and effective intervention into matters related to capacity building of enforcement agencies in the field of wildlife crime enforcement and by providing professional assistance to create deterrence to the organized wildlife crime nexus.
- v. Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are some of the research organisations undertaking research on conservation of wildlife.
- vi. The Indian Government has banned the veterinary use of diclofenac drug that has caused the rapid population to decline of Gyps vulture across the Indian Subcontinent. Conservation Breeding Programmes to conserve these vulture species have been initiated at Pinjore (Haryana), Buxa (West Bengal) and Rani, Guwahati (Assam) by the Bombay Natural History Society.
- vii. The Centrally Sponsored Scheme 'Integrated Development of Wildlife Habitats' has been modified by including a new component namely 'Recovery of Endangered Species and species have been identified for recovery viz. Snow Leopard, Bustard (including Floricans), Dolphin, Hangul, Nilgiri Tahr, Marine Turtles, Dugong, Edible Nest Swiftlet, Asian Wild Buffalo, Nicobar Megapode, Manipur Brow-antlered Deer, Vultures, Malabar Civet, Indian Rhinoceros, Asiatic Lion, Swamp Deer and Jerdon's Courser.

- viii. Under the ‘Recovery of Endangered Species’ component of the Centrally Sponsored Scheme ‘Integrated Development of Wildlife Habitats’ for the recovery of endangered species viz. Hangul in Jammu and Kashmir, Snow Leopard in Jammu and Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh, Vulture in Punjab, Haryana and Gujarat, Swiftlet in Andaman and Nicobar Islands, Nilgiri Tahr in Tamil Nadu, Sangai Deer in Manipur, the government has to spend lakhs of rupees.

Sustainable Management

According to SDG 15, Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Ending environmental decline and restoring our planet is fundamental to sustainable development. Nevertheless, forests are being cut down, biological diversity is declining, and terrestrial ecosystems are being degraded at alarming rates, with profound consequences for human survival and well-being. Land degradation now affects one fifth of the Earth’s land area. Wildlife trafficking threatens human health, economic development and security through the spread of zoonotic diseases (transmitted from animals to humans), which now represent the majority of emerging infectious diseases. The COVID-19 pandemic has reminded us that by threatening biodiversity, humanity threatens its own survival.

To address these challenges, considerable efforts are being made to expand sustainable forest management and to protect sites critical to biodiversity. Countries are also enacting legislation and accounting principles to make nature “count” and to address threats to biodiversity, such as the growing spread of invasive alien species. It is time to put the health of the planet at the centre of all our plans and policies.

CONCLUSION

Although extinctions are a normal part of evolution, human modifications to the planet in the last few centuries, and perhaps even millennia, have greatly accelerated the rate at which extinctions occur. Habitat loss remains the main driver of extinctions, but it may act synergistically with other drivers such as overharvesting and pollution, and, in the future, climate change. Large-bodied species, rare species, and habitat specialists are particularly prone to extinction as a result of rapid human modifications of the planet. Extinctions can disrupt vital ecological processes such as pollination and seed dispersal, leading to cascading losses, ecosystem collapse, and a higher extinction rate overall.

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TECHNOLOGICAL ADVANCEMENT AND ENVIRONMENTAL DEGRADATION

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Abstract

Telecommunication is an essential infrastructure for economic development but how far is the balance in protection of human life in the same instance. In the fast and growing digital world, expectations from telecom industries concerning high-speed internet and quality voice calls are demanding but have the responsible citizens ever thought about, how the net speed increases? How every minute spend on a website can cause network towers to emit radiation causing the deaths of many?

Keywords: *Telecommunication, mobile network, telecommunication growth, poor environment*



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Introduction

It's easy to talk about green, however, what does that mean in practice? Are extreme developments in the telecommunications industry causing environmental problems or are they just happening today? When it involves environmental issues, the telecommunications industry' perform is also outlined as a instead extreme stability and pragmatism. Of course, the company will build various strong arguments to assert its green certification. The very existence of telecommunications, along with the proliferation and development of technology we have seen in recent years, has had beneficial effects. Telecommunications and the adoption of unified communications are gradually replacing measurement with the need to go around the world. evidenced by recent plans by Antonio Horta-Osorio the new government of the Lloyds banking cluster, which resettle illegal workers a week a month for the rest of the year, expect them to use them instead use video conferencing. Virtualisation and cloud computing are more environmentally friendly than alternatives.

Hypothesis

H1: Telecommunication evolution affects environmental degradation.

H0: Telecommunication evolution does not affect environmental degradation

Review of Literature

Study on Environmental Impact and Regulatory Aspects of Sustainability of Telecom Industry by Nishant Mehra:

While the issue of the environment is as old as humanity itself, genuine familiarity with the issue has grown steadily, as the harm caused for nature has become increasingly genuine. The corruption of nature and the connection between the climate and advancement

The topic "Broadcast communications and the Climate" is an especially significant subject which could barely be more pertinent to the present reality. The kind of improvement we mean is "maintainable turn of events"

Job of media communications in the climate as It makes the achievability of such ventures dependent upon three elements Level of advancement of the telecom framework Social or business the world telecom framework satisfies three fundamental capacities. It associates the world, local and public meteorological focuses It assembles perception information and disperses them around the world. It conveys examinations and figures ready by information handling focuses. The media transmission area ought to be provided with manageable energy sources. Depending on the location, the top of the cell must collect energy from an appropriate and intelligent energy source. Solar cells, wind energy, hydrogen energy devices, biomass energy. Limited scope hydro-electric power sources the above feasible drives Energy collecting innovations are getting well known and new strategies for environmentally friendly power energy creation are arising each year. Broadcast communications play a fundamental part to play in the climate yet they ought to give economical energy to secure the climate Energy collecting innovations are getting famous and new procedures for environmentally friendly power energy creation are arising each year. The public authority of India is additionally advancing green drives for telecom.

The objective of the study

- To study the laws about telecommunication industry
- To study the effects of telecommunication on the environment
- To study the possible effects of mobile towers on human health

Methodology

This study is based on secondary source of data referred and evaluated from the various sources such as research gate, SCC Online, Supreme court, and high court website, and also the official website of telecommunication i.e. department of telecommunication of India (India wireless Act 1933 and Telecom Regulatory Authority of India (TRAI) Act, 1997)

Telecom Industry

1. The law about telecommunication in India:

1.1. Is it legal to put mobile towers in residential areas?

The legal guidelines referring to the placement of provider towers in residential regions aren't declared. As lengthy as they have got a structural protection certificates from a designated institute that states that the shape and moreover the cooling gadget this is region in does now no longer harm the citizens most of the society or section, the approval of the municipal authority partner degreed signal partner indemnity bond declaring that they'll be chargeable for any losses or accidents due to the tower, corporations unit liberated to put in cellular towers in residential regions, in the event that they have the citizens' support. this could be as a consequences of the regulation does now no longer produce residential regions constrained for them. corporations simply have to ensure that the tower isn't region in amongst a 100-meter radius of hospitals and academic institutes. albeit the ideas point out that corporations were given to like forest regions for cellular tower set up, they obscurity categorically forbid the provider operators from spreading the community in tremendously colonised regions. this is as a consequences of after they unit region in in forests, the community does now no longer attain city regions properly. With the growth in gadget of dimension frequency, it is strong to offer offerings from a overseas tower anyway.

Case Law: The Hobbles court of Rajasthan inside the case of Justice I.S. Irani (Retd.) & ANR. v Union of Asian u . s . has manipulate that towers on hospitals and university homes etc. have to be prevented as children and sufferers can also be extra at risk of potential dangerous consequences of electromagnetic wave. The case related to the erection of cellular towers in certain volatile regions like faculties, hospitals, and high-density residential regions and consequently the validity of with the aid of using-legal guidelines that prohibited the erection of cellular towers in such regions. The courtroom docket manipulate to be legitimate the bye-legal guidelines of the authorities, created on the recommendation of the Central Government. inside the case of the densely inhabited residential regions, the courtroom docket directed the

authorities and consequently the local government to decide on case sensible foundation concerning the set up of towers inside the densely inhabited regions following the regulation.

1.2. will one forestall cellular tower set up in a very residential area?

In case a tower is created and is being operated with the aid of using the employer that do not appear to be punctually accredited in a very suitable region, the citizens have to record same on the earliest. One may additionally method the green judicature to stop the set up of cellular towers in regions prohibited below the regulation or have unique homes spherical the region of set up.

Case Law: curiously, it is been manipulate inside the case of *Reliance Infocom Ltd. v gramma panchayat* that the right to Life enshrined below Article twenty one consists of all the ones elements of lifestyles that create lifestyles purposeful, complex, and price dwelling. the occasion of generation has its sick consequences on individuals, however, every so often parents can want to region up thereupon on the charge in their blessings.

2. end result of developing telecommunication community on our environment:

A telecommunications community is partner digital gadget of hyperlinks and switches, but due to the fact the controls that adjust their operation, that allows data to be despatched and dispensed among numerous users.

For two-manner spoken language, numerous varieties of telecommunications networks rectangular degree utilised. The telecommunications community became wire-primarily based totally inside the length of telephone, and speech alerts have been carried mistreatment magnetism, analogy impulses. Phone networks nowadays rectangular degree virtual and is probably stressed or wireless. From strictly circuit-switched to packet-switched, the gadget for connecting subscribers has progressed.

India's telecommunications community is that the world's second-biggest as it offers a first rate numerous to the transportation of product but as parents with the aid of using wearing information in written, oral, visual, and digital forms. Telecommunications will facilitate with the implementation of environmental packages directly. Communication, for example, related considerably provincial telephone strains endeavours to deal with a motivating force for multi-sectoral fused improvement, giving semipermanent positions, pay, and thriving, through the framework it builds up. low-esteem rates, broadened availability, the carry out of Mobile assortment versatility (MNP), changing from 0G to 4G inclusion, tackling endorser consumption designs, and a useful prohibitive biological system have all added to the business' remarkable blast in current years anyplace propels in 5G age rectangular degree being made
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inside the improvement of the World-Wide Wireless net (WWW). Horticulture has been a recipient area while extra advanced admittance to the data predicted to shape operating, showcasing and dissemination strategies for farming flip out and fancied product can help with stemming the tide of relocation to towns, preserve human beings were given comfy, their different weather urge them to determine the land, and afterward alleviate stuffing in oftentimes over-populated huge towns and this can't however so accelerate the occasion of the provincial economy, and therefore paintings at the regular environments of the u . s . world.

Medical offerings conveyance is at the cusp of a modification inside the way it is despatched and coordinated. Advancements in telecommunication and exclusive related advances rectangular degree including to extra advanced great consequences. it is the coordination of broadcast, communications, innovation, and pills to create telemedicine and Telehealth care. scientific useful resource specialists rectangular degree currently sharing data, protecting meetings making use of satellite tv for pc connections, fibre optic agencies, flexible broadband throughout the sea or city groups or structures. Videoconferencing equipment and mechanical innovation rectangular degree helping implausibly to carry health practitioner centres and medical places of work as near a affected person due to the fact the highest pc screen. These rectangular degree probable to deliver reasonably-priced important medical and analytic notion to rather huge populaces that don't method those days.

It is fascinating to visualise that as proper time due to the fact the quit of the 19th century, numerous human beings dwelling in rather stylish areas have been grumbling to the courts of commotion, smoke, lousy stench, and completely exclusive influences of current contamination. There rectangular degree a without a doubt huge variety of prison picks on record. Albeit in a long way and away maximum of the instances, the instances have been exempt due to the organisations have been vital for the cash improvement of the nation's being stated and for the fulfilment of character requirements, which it have been absolutely everyday that certain human beings were given to understanding a selected degree of burden.

Mobile tower radiation has been a deliver of issue in Asian u . s . for some time, and this issue appears to personal severe in current years due to the fact the variety of cellular provider providers has enlarged. the trouble became highlighted with the aid of using partner period in-between name issued with the aid of using the Supreme Court of Asian u . s . on March thirty, 2017, inside the case of Bhupesh Sehgal v Old Delhi Development Authority to disable a cellular tower due to it have been suspected of causing most cancers. that is frequently partner offences in opposition to humanity as no fitness evaluation on modern-day communications
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networks has been carried out with the aid of using trade. they do now no longer want to on the grounds that they want a lock on legal guidelines that permits them to decide base stations on streets close to to human beings's houses at can, without a redress.

Humans rectangular degree uncovered to towers and base stations because of the shallower penetration intensity of higher frequencies, the radiation are targeted in a very smaller area of the build. These frequencies ought to also be more potent to hard work beneath earth obstructions. Over time, the exposures can get increasingly targeted, confirming magnetism radiation's malignant neoplastic disorder end result (EMR). There could be outcomes for most cancers rates, neurologic diseases like electric hypersensitivity (EHS), fertility, and polygenic disorder. children rectangular degree in particular in danger. Wireless comfort has led to a very big cash base and an big public target target market that has been LED to agree with that EMR has no fitness outcomes way to public belief and easy science.

Numerous international agencies have advised pretty much All-counterfeit electromagnetic wave is a problem due to herbal frameworks do not appear to be adjusted thereto. Those consequences remained basically undiscovered on the grounds that publicity enlarged little by little and commenced at a time as soon as contamination detection became constrained. for lots years, scientific evidence has been unheeded.

3. potential consequences of cellular towers on human fitness

According to the planet Health Organisation's (WHO) International Agency for evaluation on Cancer (IARC), radiation from hazardous handsets and towers reasons most cancers to humans' and could motive mind tumours, a shape of mind most cancers. With large depth and steady radiation, cellular towers may also be lots of risky than cellular phones.

Following rectangular degree the other Medical consequences at the human body

- | | |
|-------------------------|---------------------|
| a. Brain swelling | h. Headaches |
| b. Sleep-related issues | i. Dizziness |
| c. Hearing loss | j. Fatigue |
| d. Anxiety | k. Altered reflexes |
| e. Lethargy | l. Depression |
| f. Heart disorders | m. Joint pains |
| g. Mental disorders | n. Cancer |

Major findings

- a. In the case of **Arvind Gupta v Union of India¹**, the National Green Tribunal ("NGT") observed that "it is clear beyond doubt that the radiation from electromagnetic waves resulting from the mobile towers is not explicitly covered in any of the scheduled acts to the NGT Act, 2010. Even under the NGT Act, 2010, relevant definitions under provisions do not refer to the radiation specifically." Hence the amendment regarding electromagnetic waves should be brought under the said provision.
- b. Rules imposed by telecom regulatory on tower plantations are still developing.
- c. One of the most important points to be remembered is tower planting in any residential area or any forest are it is dangerous for living being which may lead to various health issues and at the instance it may lead to death also.
- d. The hunger for getting high-speed web step by step is harmful to our wellbeing so utilize your electromagnetic gadget cautiously.

Conclusion

So, on a conclusive note telecommunication and environment is a particularly important subject which would hardly be relevant to the world today. It is possible to design the quickest telecommunication systems whereas minimising health impacts. First, offer the best priority to the preparation of optical fibre networks to homes and businesses, which can, ultimately, be 2 crore times faster than 5G. Second, maximise wired connections, which, like cable, will bring speeds of ten Gb/second to homes. Third, acknowledge cell phones for what they are: a radiating device. plan them to reduce user exposures, which may lead to a discount by factors of a hundred. And, use them sparingly, instead of letting them become a substitute to workstations and the home of eye candy. And at last but not list researchers accept H1 Hypothesis i.e. Telecommunication evolution affects environmental degradation.

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FRAGILE ECOLOGY OF THE HIMALAYAS

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Abstract

"Our planet's alarm is going off, and it is time to wake up and take action!"¹ – Leonardo DiCaprio
Our north and north-eastern borders are formed by the Indian Himalayan Region (IHR), which comprises 533,000 sq. km. of mountainous terrain spread across ten mountain states and four hill districts.² Recognizing the distinctiveness of the Himalayas and the demanding situations for sustainable tourism, the study emphasizes the significance of sustainable measures to prevent degradation of the ecology. Himalayas have been an integral geographical aspect of India. The Himalayas harbour a rich form of flora, fauna, tribal communities, and cultural diversity. The studies put light on incorporating sustainable measures in these mountain ranges and strive to recognize diverse sociological and legal elements that play a key role in it. The Government launched Swachh Paryatan³, a mobile application in 2016 to let citizens report hygienic based problems across the country. The concerns for sustainable livelihood of local communities and tourism management, the researcher suggests the approaches through which sustainability can be integrated without disturbing its socio-legal principles.

Keywords: Sustainable tourism, socio-legal measures, fragile ecology, Indian Himalayan Region, factors.



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¹ Zafar, S. (2020, December 18). *15 Inspirational Quotes On The Environment*. Retrieved September 18, 2020, from <https://www.ecomena.org/inspirational-quotes-environment/>

² Aggarwal, M. (2018, October 10). *NITI Aayog proposes green cess for the Himalayan region*. MONGABAY. <https://india.mongabay.com/2018/10/niti-aayog-proposes-green-cess-for-the-himalayan-region/>,

³ NITI Aayog. (2018). Report of Working Group II Sustainable Tourism in the Indian Himalayan Region. https://www.niti.gov.in/writereaddata/files/document_publication/Doc2.pdf

Introduction

*Around 15, 000 feet the slopes below Mount Everest support a typical alpine community of plants and animals. Above this altitude there is a unique community that is founded on wind-blown organic matter.*⁴

As compared to any other part of the subcontinent, the Indian Himalayan region has a significant advantage in natural resources, biodiversity, and wildlife. The Himalayas are named after the Sanskrit words "hima" (snow) and "alaya" (abode).⁵ The Himalayas, being the youngest mountains, have an arc around 1,550 miles long⁶. The Himalayas are the source of the world's foremost rivers and aid in controlling the climate. It is home to a varied spectrum of flora and fauna and has been home to species like the snow leopard, Bengal tiger, and one-horned rhino. It also grows varieties of plants like tropical evergreen forests, resin producing trees, and there is a presence of rhododendron in the wetter areas of the eastern region.

The Himalayas have long been a popular tourist destination, whether it is for pilgrimages or adventure tourism or perhaps even a relaxing vacation with family and friends. However, mountain tourism is demand driven and often people fail to realise the negative impact of mass tourism on its fragile ecosystem. The increase in human travel and camp setups has created a long-lasting problem of deforestation, soil erosion, pollution, solid waste management, insufficient water disposal measures and other problems.

The primary reason behind the undertaking of this research is the relevance of discussing sustainable tourism in post-pandemic times, since the tourism industry is likely to get off to a regular start. The researchers, through this paper, wish to propagate and contribute to the idea of sustainable tourism in maintaining the fragile ecology of the Himalayas.

⁴ Swan, L. W. (1961). The Ecology of the High Himalayas. *Scientific American*, 205(4), 68–79. <http://www.jstor.org/stable/24937104>

⁵ Dikshit, K., Spear, T.G. Percival, Calkins, Philip B., Champakalakshmi, R., Wolpert, Stanley A., Allchin, Frank Raymond, Subrahmanyam, Sanjay, Schwartzberg, Joseph E., Srivastava, A.L., Alam, Muzaffar and Thapar, Romila (2021, September 29). India. Encyclopedia Britannica. <https://www.britannica.com/place/India>

⁶ Supra Note 2

Hypothesis

The topic chosen by the researchers is vast and hence, the researchers have tried to narrow it down.

1. Sustainable tourism will lead to safeguarding the fragile ecology.

Objectives

- To be able to draw a relationship between sustainable tourism and safeguarding the ecology of the Himalayas.
- To study the factors caused by tourism that is responsible for the degradation of the Himalayan ecology.
- To suggest socio-legal measures to better the ecology of the Himalayas.

Definitions

1. **Sustainable tourism:** Sustainable tourism involves striking a balance between the environmental, economic, and social aspects that are crucial to biodiversity conservation. By reducing its impact on the environment and the culture, it helps to sustain the ecosystem for future generations to equally benefit from it. Furthermore, tourism plays a crucial role in generating responsiveness and promoting a positive behaviour revolution among the travellers.
2. **Ecotourism:** International Ecotourism Society describes ecotourism as preserving the environment, supporting the well-being of local people, and fostering understanding and learning in natural areas.

Review of Literature

The researchers have referred to various research papers, Statutes, World Wide Fund for Nature, India China Institute and various other sources for the purpose of research. Through these sources, the researchers have tried to first understand the relationship between sustainable tourism and the environment and how fragile the ecology of the Himalayas has been. The researchers have shown the richness of the Himalayas by analysing the past and present and the significance of the Himalayas.

Researchers strive to understand the challenges that the communities in such mountain ranges face in identifying new and sustainable opportunities in tourism that can bring benefits to both local tourism businesses and the fragile mountain ecosystems. With the understanding of the Statutes, the researchers have tried to elaborate on the socio-legal measures and the suggestions and address the problems of mass tourism on the natural and cultural legacy of the Himalayas.

From Past to Present

In the Himalayas, tourism has long existed as a form of pilgrimage to Hindu sanctuaries situated high up in the mountains. The Himalayan tourism industry can be divided into three major groups from a historical perspective: religious pilgrimages, British hill stations of the nineteenth century, and modern mass tourism of the twentieth century. The Indian Himalayas are also known as the "**abode of Shiva**" (Hindu god) in the Puranas (mythical tales of Gods and Kings), and are regarded sacred due to their northerly orientation (direction of spirituality). As a result, Hindus see the Himalayan region as a "**sacred space**" with spiritual significance.

The second stage of tourism began when the British found the Himalayas as a recreational region in the nineteenth century. The British introduced the concept of summer resorts, known as Hill Stations, into India in the 19th century. In 1819, Shimla became the first hill station. It served as India's government and military headquarters in 1838 (remaining until Britain withdrew from India in 1947), and was recognized for its increased importance. Other summer resorts were Musoorie, Darjeeling and Nainital. By 1869, several summer resorts in Dalhousie, Dharamsala and Ranikhet had been added.⁷

⁷ Spaltenberger, T., *Tourism in the Himalayas*,
<https://www.spaltenberger.de/usa/himalayantourism.pdf>

Modern mass tourism in the Himalayan region began in the 1950s after Sir Edmund Hillary and Tenzing Norgay climbed Mount Everest and popularized the region on another belt in the world that had previously ignored the region more or less.⁸ Modern tourism in Himalayan, including activities such as trekking, mountaineering, tourism and winter sports, began in the post- independence era and was introduced only in the last few decades. Western mass tourism has a great impact on the local environment and social structure.

⁸ Supra Note 5.

Socio-Legal Aspects

- Social And Environmental Aspect

- Improvement in tourism has introduced prosperity to many **nearby communities** living in this mountain range. It has also, however, had unfavourable impacts on **regional forests** and **alpine vegetation** due to the use of firewood by camping businesses and hotels and the felling of trees to construct accommodations and

other tourist facilities. First of all, large-scale mountain deforestation caused floods in the lowlands, but increased vehicle pollution left trekker debris many times uncontrolled. There are various logging regulations in the area, but given the rate of deforestation, they do not seem to be effective.

- Development objectives such as the conversion of forests to agricultural land, the construction of various infrastructure projects and the use of forests for timber, feed and firewood are one of the most serious threats to the region's biodiversity.

⁹ This contributes significantly to habitat loss.

- In a new study, published in the next issue of the journal *Biodiversity and Conservation*, an international team of researchers concluded that forest coverage on the Indian side of the mountain would increase from 84.9% in 2000 to 52.8% by 2100. It is done to reduce unrestricted development, land reclamation for agriculture, or timber collection for fuel. The study predicts that 366 species of plants and three dozen species of birds, fish, and mammals may become extinct. In it, researchers said it would be a large, limited range of species, including Himalayan tigers, black bears, Hoolock gibbons, and Himalayan grouse.¹⁰

- Another drawback of tourism in these mountain ranges that we discovered throughout our research is that there is also substantial loss of indigenous culture as a result of increasing contact with foreign cultures.

⁹ Climate Change. World Wide Fund.

https://wwf.panda.org/discover/knowledge_hub/where_we_work/eastern_himalaya/threats/

¹⁰ (2006, May 25). *Himalayas deforestation could lead to plant, animal loss.*

IATP. <https://www.iatp.org/news/himalayas-deforestation-could-lead-to-plant-animal-loss>

- Himalayan tourism is often associated with pilgrims. Extreme congestion, on the other hand, is often overlooked as a cultural heritage of protected areas or endangered mountainous areas. Environmentalists consider the Hindus to be sacred Gangotri, the origin of Ganges, has become a favela full of debris and human waste that pollutes rivers near 800,000 pilgrims.¹¹ Claims. Hundreds of thousands of Hindu pilgrims visit the Himalayan sanctuaries and pollute the fragile mountain ecosystem.

- Pursuing this further, there is also a rising concern about the sustainable disposal of solid waste in the Himalayas as urbanisation and tourism increase. Tourists function as a floating population, contributing to trash creation in the IHR. Littering throughout tourist routes and open waste disposal in valleys and streams has become frequent, posing a serious public health and environmental threat as they exhibit different consumption behaviour than the permanent population.¹² Lack of sufficient waste disposal measures and increasing demand for clean drinking water, which exceeds the supply system's capacity and leads to water shortages and contamination of downstream water, are some of the negative effects of urbanisation and tourism.
- According to the Indian Central Pollution Control Commission CPCB (2019), lack of infrastructure, inadequate budget allocation to local governments and improper waste collection systems are some of the biggest challenges faced by SWMs.¹³ Sub-zero temperatures in these mountains are also a technical barrier to sustainable composting, and in certain situations the composting process can even fail in these cold hills. Due to the connections of the poor and the socio-economic status of the inhabitants, the waste generated in the area never ends up in the correct SWM system.¹⁴

¹¹ Mushtaq, S., (2007, July 12). *Pilgrims destroying the Himalayas: experts.*

REUTERS. <https://www.reuters.com/article/us-himalayas-environment-pilgrims-idUSDEL30387620070712>

¹² Kirch, A., (2002). Impact of Tourism and Urbanization on Water Supply and Water Quality in Manali, Northern India., *Canadian Water Resources Journal* 27(4), 383-400, <https://doi.org/10.4296/cwrj2704383>

¹³ (2018, September). River Stretches For Restoration Of Water Quality. *Central Pollution Control Board.*

https://nrcd.nic.in/writereaddata/FileUpload/River_STRETCHES_Sept_2018.pdf

¹⁴ Thakur, A., (2021). Solid Waste Management in Indian Himalayan Region: Current Scenario, Resource Recovery, and Way Forward for SustainableDevelopment. *Frontiers*, <https://www.frontiersin.org/articles/10.3389/fenrg.2021.609229/full#h5>.

Legal Aspects

In the Constitution of India, it is stated, that it is the responsibility of the state to *protect and improve the environment and to safeguard the forests and wildlife of the country*.¹⁵

The current state of tourism and leisure is represented by the continued growth of both planned and unplanned tourism, which has an ecologically detrimental effect.

- In the past few years, the Union Ministry of Tourism has undertaken some tasks to expand a sturdy tourist economy, which include the Incredible India 2.0 campaign, PRASHAD, and Swadesh Darshan. It gives a wonderful scope for the reworking of the tourism area as 'Green Tourism', with a view to make it inclusive and sustainable, for this reason contributing to the United Nations authorised Sustainable Development Goals (especially SDG-eight and SDG-12). As interest and funding for sustainable towns and communities (SDG-11) grows in India, efforts to strengthen, defend, and protect our ecosystem and cultural heritage are becoming unavoidable.
- With the enactment of the Wildlife Protection Act (WPA) and the release of Project Tiger in the same year, there has been a constant growth within the region's country-wide parks and sanctuaries with an implicit consciousness of retaining the ecosystem. WPA regulates tourism by explaining the line between tourist actions and other environmental safeguarding activities connected to wildlife and the forest. The Wildlife (Protection) Act of 1972 prohibits the killing or shooting of animals, birds, or other organisms. The following changes to the WPA in 2002, 2006 and 2013 addressed these issues and created areas for the protection of flora and fauna to include issues of human life and improvement.
- The current coverage, the NAPCC, has diagnosed the reality that climate conditions may 'adjust the distribution and pleasant of India's herbal assets and adversely have an effect on the livelihood of its people'. One of the guidelines of NAPCC is to innovate new strategies that can lead to sustainable development (Government of India 2008). The programme mainly focuses on human interfaces and vulnerability to climatic conditions. The Ministry on October 14th 2009 released the Indian Network for Climate Change

¹⁵ The Constitution of India, 1950, 48-A, Acts of Parliament, 1950, (India).

Assessment (INCCA) ¹⁶. The INCCA became conceptualised as a network, which is mainly based on applications designed to assess the consequences of weather changes through clinical research and factors that are threats to climate change.

- The Forest Rights Act, 2006 (FRA) ¹⁷, of the Ministry of Tribal Affairs, seeks to recognise the rights of tribal communities living in forests and other forest occupants. The 1981 Forest (Conservation) Act and Regulations provide for the protection and conservation of forests. The Forest (Conservation) Act of 1986 was ratified to protect deforestation. The law provides that deforestation or the use of forests for non-forest reasons is unacceptable without the prior consent of the central government. Forest conservation includes reforestation as well as conservation and conservation of the remaining forests.
- Through the National Mission for Sustaining the Himalayan Ecosystem (NMSHE), the Indian Government has analysed keeping the sustainability of environmental matters as their number one agenda.

¹⁶ Elena Gissi, Benjamin Burkhard, Peter H. Verburg. (2015) Ecosystem services: building informed policies to orient landscape dynamics. *International Journal of Biodiversity Science, Ecosystem Services & Management* 11:3, pages 185-189. <https://www.tandfonline.com/doi/full/10.1080/21513732.2015.1030694>

¹⁷ The Forest Rights Act, 2006, Acts of Parliament, 2006, (India).

Suggestions

- Building sustainable tourism in Himalayan eco-system calls for significant level of government interactions and collaboration with Non-Governmental Organisations. With the help of government, NGOs and participation of civil society can help in research, policy decisions and fund allocations.
- Bio composting and Vermicomposting also can be used for livelihood opportunities in this region. Vermicomposting is an essential component for optimal growth in cultivated plants. Continuous use of vermicomposting replenishes soil fertility fast through enhancing the physio-chemical and organic houses of the much less fertile soils.
- In order to reduce pollution and manage waste, all paper goods and other plastic waste should be disposed in the right manner. Sustainable products, like steel straws, paper and cloth bags, recyclable products, etc., should be used while travelling as they are eco- friendly in nature

- We need to establish additional programs, such as The Sacred Himalaya Initiative, which focus on pilgrimage and the creation of a sustainable environment. Clearly, the Himalayas as a territory are vast, with numerous religious sites, thus a balance must be established as the ecology of the Himalayas is degrading.
- Green zones help us in preserving the ecologically volatile areas and the biodiversity around them. Establishing green zones can help us in creating community gardens, urban farms, land policies that prevent pollution and protect the environment and economic conditions.
- Introducing reforestation programmes through local communities will lead to the restoration of forests. National Afforestation Programme (NAP), aims to restore forests naturally and conserve the forests.
- Ecotourism could be a better substitute for mass tourism as it guarantees sustainable development and protection. We need to issue long-term guidelines and mechanisms for complete development of ecotourism in such regions.

Conclusion

No other mountain range in the world has affected people's lives and the fate of the country as much as the Indian Himalayas. These mountains are Asia's Water Towers, with their physical majesty and natural splendor. One simply cannot overlook the numerous ways in which tourism has benefited the region and been a powerful force of change and growth. Recognizing its influence on the region, it becomes a key factor determining people's livelihoods.

As the research suggests, many of the difficulties that the region is experiencing are a direct result of mass tourism. Therefore, bringing change in the form of tourism allows us to not only directly address the problems, but also effectively deal with them. As a result, the researchers propose the introduction and implementation of ecotourism and sustainable tourism.

Sustainable tourism, as seen in the paper, is committed to causing no harm to a region's local environment and heritage, while still improving the local economy. The tourism industry in this region is segmented and lacks holistic approaches which have led to a knowledge gap on the intensity and the impact of these problems. We believe that the lessons we have learned from the pandemic crisis can put tourism on a more sustainable footing. We must take this as an opportunity for substantial structural changes that could be based on sustainable development models. As observed in the research, a sustainable

approach to tourism is all about maintaining the environment, the economy, and equity. Today's major issue for sustainable tourism is to strike a balance between preserving tourism income and saving the environment. The Himalayan ecosystem is critical to the ecological security of India's landmass, offering a strong foundation for high-value vegetation as well as spectacular landscapes for tourism. We must remember that the Himalayas are home to rare plant life and endangered species. Thus, it becomes our responsibility to support goals that include protecting the environment, addressing climate change, minimizing plastic consumption, and expanding economic development in communities affected by tourism. As Jochen Zeitz once stated, "Sustainability is no longer about doing less harm. It's about doing more good."

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