

CONSTITUTIONAL FRAMEWORKS AND LEGAL MECHANISMS FOR ENVIRONMENTAL PROTECTION: A COMPARATIVE ANALYSIS OF INDIA AND THE USA

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ABSTRACT

This comparative analysis explores the constitutional frameworks and legal mechanisms for environmental protection in India and the USA. It begins by tracing the constitutional evolution in India, highlighting landmark judicial pronouncements that have elevated the right to a clean environment to a fundamental right. Similarly, in the USA, despite the absence of explicit environmental provisions in the federal Constitution, the judiciary has interpreted constitutional clauses to address environmental issues, supported by pivotal legislation like the Clean Air Act and the Clean Water Act.

The legal framework analysis contrasts environmental laws in both countries, emphasizing the role of legislation, cooperative federalism, and international agreements in shaping environmental governance. It discusses criminal penalties, enforcement mechanisms, and challenges in implementing environmental laws, noting the need for public awareness and efficient prosecuting agencies.

Judicial review involving constitutional challenges to environmental regulations is examined, emphasizing the balancing act between environmental protection and individual rights. Key cases from both countries illustrate the judiciary's role in interpreting and enforcing environmental laws, ensuring a harmonious balance between environmental imperatives and economic interests.

Policy recommendations for enhancing environmental protection mechanisms include strengthening enforcement, promoting public awareness, leveraging advanced technologies, and fostering international cooperation. Additionally, future directions in climate policy, biodiversity conservation, and sustainable development are outlined, highlighting the importance of legislative reforms, research initiatives, and environmental governance improvements.

Keywords- Environmental, Illegal dumping, Pollution, Comparative analysis, Legal Framework

I. Introduction

Preserving the environment stands as a pivotal aspect of contemporary governance, demanding resilient legal frameworks and strategies to safeguard ecological assets for current and

forthcoming generations. This study offers a comparative examination of the constitutional and legal structures governing environmental protection in India and the USA.

Section I initiates the discourse by providing an outline of the subject matter, accentuating the significance of comprehending the constitutional and legal foundations of environmental safeguarding in both nations. Section II delves into the constitutional frameworks for environmental conservation. It scrutinizes India's journey in environmental jurisprudence evolution, commencing from the integration of environmental imperatives into the Constitution post the Stockholm Conference of 1972 to significant judicial declarations recognizing the entitlement to an unpolluted environment as an intrinsic right. Analogously, in the USA, notwithstanding the dearth of explicit environmental provisions in the federal Constitution, the judiciary has construed constitutional clauses and enacted laws to tackle environmental issues, including notable litigations like *Massachusetts v. EPA*.

Section III plunges into the legal frameworks for environmental regulations across both nations. It offers a comparative assessment of legislative enactments targeting air and water pollution, management of hazardous wastes, and preservation of wildlife, elucidating similarities and disparities in regulatory methodologies. In Section IV, the analysis shifts towards the role of criminal law in environmental conservation, focusing on punitive measures for environmental transgressions and the imperative for efficacious enforcement mechanisms to curb violations.

Section V scrutinizes judicial review instances entailing constitutional disputes concerning environmental regulations, accentuating the significance of balancing environmental protection with individual rights and economic prerogatives. Section VI proffers policy recommendations and future trajectories for augmenting the efficacy of legal mechanisms in safeguarding environmental rights, addressing challenges such as deficient enforcement, public consciousness, and international collaboration. Ultimately, Section VII culminates the study by encapsulating pivotal findings and suggestions, emphasizing the essence of robust legal frameworks, efficient enforcement mechanisms, and global collaboration in preserving the environment and advancing sustainability endeavors in both India and the USA.

II. Constitutional framework for the protection of the environment

1. Constitutional Evolution: India's Environmental Jurisprudence Journey

The original unamended Constitution of India did not specifically make protection of the environment a Directive Principle of State Policy. However following the Stockholm Conference of 1972, it was realized that firstly a constitutional mandate must be put on the successive governments to ensure the protection of the environment and secondly citizens must play their part to protect the environment as well. Hence the 42nd Amendment was made to the Constitution of India which inter alia inserted Article 48A¹ and the Part IVA² (Fundamental Duties) in the Constitution. Article 48 puts an obligation to protect and improve of the environment in the state as well as enjoins it to preserve the forests and wildlife. In Part IVA Article 51A(g) introduces the citizens of India to their fundamental duty to protect and improve the environment.

¹ Constitution (Forty-second Amendment) Act, 1976, S.10

² Constitution (Forty-second Amendment) Act, 1976, S.11

Further, the role of the Hon'ble Supreme Court of India cannot be overemphasized when it comes to environmental protection. Through its various pronouncements, it has not only made the Right to a Pollution-free environment a fundamental right within the meaning of the Right to life and Personal Liberty but has also recognized various principles and made them a permanent part of the environmental jurisprudence of our nation.

In *Rural Litigation and Entitlement Kendra V. UOI*³ the Supreme Court of India for the first time held that the Right to a healthy environment is a fundamental right within the meaning of Article 21 of the Constitution.

In *MK Ranjitsinh and Ors v UOI and Ors*⁴ the Supreme Court observed that despite more than fifty years have passed since the parliament started enacting laws specifically to tackle the environmental concern, there is yet to be enacted any umbrella legislation against climate change. In this case, the Supreme Court used Article 21 and Article 14 of the Constitution of India to hold for the first time that people have a right against adverse effects of climate change. In *Vellore Citizen Welfare Forum V. UOI*⁵ the Supreme Court recognized precautionary principle and the polluter pays principle to protect the environment.

In *MC Mehta V. Kamalnath* the Supreme Court recognized the Public Trust Doctrine to remind the state that it is just the trustee of the natural resources of India and not its absolute owner. As a trustee, the state has to ensure that all the decisions it takes regarding the natural resources of the nation are made for the ultimate benefit of the beneficial owners i.e. the citizens.

The express provisions and judicial pronouncements create a solid foundation over which India's environmental jurisprudence is built. The right to a clean environment is recognized as a fundamental right. Through various pronouncements, the Supreme Court has shown its unwavering commitment to the protection of the environment and sustainable development.

2. Constitutional Innovation: Navigating Environmental Governance in the United States

At the federal level, the Constitution of the USA does not expressly talk about environmental protection. At the State level, six states have express provisions in their constitutions to protect the environment.⁶ However, the US federal government has from time to time used various other provisions of the US Constitution to control pollution of the environment.

For instance, the Commerce Clause appearing in the US Constitution has been utilized by the United States Federal Government to make rules for the protection of the environment.⁷ Article I, Section 8, Clause 3 is one such commerce clause. It grants power to Congress to regulate interstate commerce. It has been deployed many times to regulate environmental matters that can have interstate effects.⁸ Spending Clauses are another example. It allows the Congress to impose certain conditions on the states for receiving federal funds. Congress may attach

³ *Rural Litigation and Entitlement Kendra V. UOI*, AIR 1988 SC 2187

⁴ *MK Ranjitsinh and Ors V UOI and Ors*, Decided on 21st March, 2024

⁵ *Vellore Citizen Welfare Forum V. UOI*, AIR 1996 SC 2715

⁶ Webb, R., *Environmental Rights in State Constitutions*, Climate Law A Sabin Center Blog (May 9, 2024, 10:50AM), <https://blogs.law.columbia.edu/climatechange/2021/08/31/environmental-rights-in-state-constitutions/>

⁷ Klein, C.A., 2003. The environmental commerce clause. *Harv. Envtl. L. Rev.*, 27, p.1.

⁸ Bolster, H., 2005. The commerce clause meets environmental protection: The compensatory tax doctrine as a defense of potential regional carbon dioxide regulation. *BCL Rev.*, 47, p.737.

conditions involving adoption and implementation of environmental regulation on the states if they are to receive federal funds.⁹

Moreover, the Fifth and Fourteenth Amendments to the Constitution provide protections for private property rights and due process, which intersect with environmental law in cases involving regulatory takings and environmental justice.

Further, the courts in the USA have also interpreted the US Constitution time and again to make room for environmental imperatives.

In *Illinois Central Railroad Co. v. Illinois*¹⁰ the United States Supreme Court recognized the Public Trust Doctrine and held that the states hold natural resources as trustees of the public and cannot arbitrarily grant any natural resource for exclusive utilization of any private entity.

In *Missouri v. Holland*¹¹ the question surrounded the implementation of a statute relating to migratory birds made to fulfil an obligation under a related treaty. The United States Supreme Court held that any treaty that is made under the United States of America will prevail over any contradictory state laws. This case paved the way for the federal government to regulate wildlife and environmental matters.

In *Sierra Club v. Morton*¹² the United States Supreme Court recognized the standing of individuals and organisations before it to bring lawsuits against the government to enforce environmental laws.

*Massachusetts v. EPA*¹³ In this landmark case, the Supreme Court held that carbon dioxide and other greenhouse gases are pollutants under the Clean Air Act and that the Environmental Protection Agency (EPA) has the authority to regulate them if they endanger public health and welfare. This decision affirmed the federal government's role in addressing climate change.

These are some of the cases through which environmental jurisprudence has developed in the USA. These have ensured that efforts for environmental protection can be successfully made both at the federal and state levels.

The Constitutional provisions and judicial pronouncements lay the grounds work for further efforts both legislative and executive to protect the environment and ensure that steps can be taken toward sustainable development.

III. Legal Framework for Environmental Regulations

1. Legislative Tapestry: A Comparative Analysis of Environmental Laws in India and the USA

Various Central laws have been made for the conservation and protection of the environment. It also provides for important measures to address issues of pollution and sustainable development. The laws and regulations, so made may address the individual aspect of pollution such as air, water, and land, or may even address the pollution issues of forest and eco-balance. India and the United States of America (Hereinafter referred to as USA) are among the top primary energy-consuming nations and thus India borrows many American laws and the same

⁹ Binder, D., 2001. The Spending Clause as a Positive Source of Environmental Protection: A Primer. *Chap. L. Rev.*, 4, p.147.

¹⁰ *Illinois Central Railroad Co. v. Illinois*, 146 U.S. 387 (1892)

¹¹ *Missouri v. Holland*, 252 U.S. 416 (1920)

¹² *Sierra Club v. Morton*, 405 U.S. 727 (1972)

¹³ *Massachusetts v. EPA*, 549 U.S. 497 (2007)

may be considered for the solution against pollution¹⁴. This requires an analysis of existing laws on sustainable development in the USA as against in India.

In the USA there are dedicated legislation on the regulation of air emissions from stationary and mobile sources to protect public health and the environment, where the environmental department enlists hazardous air pollutants (HAP). There is also dedicated legislation on the prevention of the discharge of pollutants in navigable waters and the protection of water quality for surface waters¹⁵. There is also a dedicated law for the management of hazardous waste disposal empowering the federal authorities for the transport, treatment, storage, and disposal of hazardous wastes¹⁶ and the law further empowers the federal courts to construe strict liability in cases of violation of water contamination and hazardous waste disposal¹⁷. It is also interesting not that under the Endangered Species Act (ESA) species once listed have improved in status with time which is an appreciable development for the protection of ecological balance¹⁸.

In India, parallels to the aforementioned laws may be easily identified. It is important however to understand that the implementation of the existing laws may vary because of the factors such as resource constraints, governance issues, etc. In the field of air pollution, its prevention and control, it is governed by the Air Act (1981)¹⁹ which regulates emissions from industries and vehicles. Furthermore, the prevention of the discharge of pollutants into water bodies such as ponds, rivers, and seas is a subject matter jurisdiction of both the state and the center governed by the Water Act (1974)²⁰, this legislation also regulates the water quality in rivers. Indian laws also deal with treatment storage and disposal facilities (TSDF) for hazardous wastes (HW), however, there is an insufficiency where the number of HW treatment facilities is lesser than the HW produced overall causing severe ecological threat²¹. To protect biodiversity and prevent extinction of endangered species India has the Wildlife Protection Act, 1972. The law however must also take a nuanced approach wherein the hostile as well as depletive potential must be addressed, wherein not only should the animals be protected from hunting, but must also be protected against deprivation of habitat and fodder due to human disturbance²². The

¹⁴ Wang, Q., Jiang, X.T., Yang, X. and Ge, S., 2020. Comparative analysis of drivers of energy consumption in China, the USA and India—a perspective from stratified heterogeneity. *Science of the total environment*, 698, p.134117.

¹⁵ Fowler, L., 2014. Assessing the framework of policy outcomes: The case of the US Clean Air Act and Clean Water Act. *Journal of Environmental Assessment Policy and Management*, 16(04), p.1450034.

¹⁶ Lehman, J.P., 2020. Resource Conservation and Recovery Act of 1976. *Hazardous Waste Management*, pp.7-25.

¹⁷ MacAyeal, J.R., 1999. The comprehensive environmental response, compensation, and liability act: The correct paradigm of strict liability and the problem of individual causation. *UCLA J. Envtl. L. & Pol'y*, 18, p.217.

¹⁸ Schwartz, M.W., 2008. The performance of the endangered species act. *Annual Review of Ecology, Evolution, and Systematics*, 39, pp.279-299.

¹⁹ P Bhawe, P. and Kulkarni, N., 2015. Air pollution and control legislation in India. *Journal of the Institution of Engineers (India): Series A*, 96, pp.259-265.

²⁰ Cullet, P. and Gupta, J., 2009. India: evolution of water law and policy. *The evolution of the law and politics of water*, pp.157-173.

²¹ Kumar, S., Mukherjee, S., Chakrabarti, T. and Devotta, S., 2007. Hazardous waste management system in India: an overview. *Critical reviews in environmental science and technology*, 38(1), pp.43-71.

²² Krishnan, M., 1973. The Wild Life (Protection) Act of 1972: A Critical Appraisal. *Economic and Political Weekly*, pp.564-566.

Environment (Protection) Act, 1986²³ is another crucial legislation for the environmental law landscape in India which brings to reality the national and state pollution control boards i.e. NPCB and SPCB.

In the field of environmental law cooperative federalism²⁴ is carried out amongst the state and federal governments in both the USA and India model. This means that the central government sets the benchmark and the state government has the Liberty to further push the efficiency standards higher than the union benchmark. In a globalising world international law evolved by the means of agreements, conventions, and treaties plays a crucial importance the United Nations Environment Programme (UNEP) and important conventions such as Kyoto²⁵, Basel²⁶ and Biological Diversity have played an important role in global corporations towards climate change, hazardous waste, and biodiversity conservation respectively.

2. From Colonial Oppression to Modern Justice: Evolution of Criminal Penalties in Environmental Law

Environmental law historically had criminal penalties in India, for instance, the Forest Act passed by the colonial British East India Company, wherein the tribals who used to reside in the forest were declared habitual offenders and branded as outcasts in their own country²⁷, to take proprietary control over the timber for exports. However contemporary environmental law does not aim to discriminate amongst the citizens of India, it provides for sanctions whenever there is a violation of the criminal laws, rules, and regulations. The criminal prosecution and sanctions in the environmental sector predominantly apply deterrence as a canon of punishment. Deterrence is created amongst the potential of Individuals when significant sanctions are levelled against perpetrators. This fear raises the compliance level amongst businesses and individuals thus impacting the overall concept of environmental justice. It also prevents environmental harm disproportionately affecting marginalized communities and vulnerable populations.

IV. Criminal Law and Environment Protection

1. Enforcing Environmental Integrity: Penalties and Pitfalls in Environmental Criminal Law

Criminal Law also works towards the protection of the environment. While the Constitution lays down the rights, obligations, and duties regarding the environment, criminal law provides a deterrent effect against environmental violations. Since criminal law is something Various laws have been put in place to penalize environmental offenses. Let us now explore various kinds of environmental offences for which penal liabilities exist

a) Environmental Pollution

²³ Prasad, P.M., 2006. Environment protection: role of regulatory system in India. *Economic and Political Weekly*, pp.1278-1288.

²⁴ Cramer, K., 2022. Restoring States' Rights & Adhering to Cooperative Federalism in Environmental Policy. *Harv. JL & Pub. Pol'y*, 45, p.481.

²⁵ Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 2303 U.N.T.S. 162.

²⁶ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Mar. 22, 1989, 1673 U.N.T.S. 57.

²⁷ Rana, S., 2020. Born to be Damned: The Colonial Construction of Criminal Tribes in India. In *Swaraj and the Reluctant State* (pp. 243-266). Routledge.

India has three primary legislations to control environmental pollution. They are Environment Protection Act, 1986, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. Apart from laying down various regulatory mechanisms these Acts also provide for penalties in cases of violations. Under them, individuals and industries can be penalized for discharging pollutants into water bodies and air without prior permission from appropriate authorities. Violations are punishable by fines, imprisonment, or both depending on the seriousness of the offense.

b) Illegal Dumping

Illegal dumping is the term used for unlawful disposal of certain substances. Illegal dumping waste is one of the leading environmental hazards in India contributing to pollution of soil, air, and water and leading to health problems. The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, and the Municipal Solid Waste Management Rules, 2016 regulate the handling, treatment, and disposal of both hazardous and non-hazardous wastes.

Individuals and industries violating these rules can be punished with imprisonment or fine or with both.

Apart from these specific laws, Indian Penal Code, 1860 also punishes disposal or release of noxious substance into water bodies or into the air.

c) Hunting and trafficking of wildlife

Wildlife Protection Act, 1972 is the main legislation prohibiting the hunting and trafficking of wild animals. India with its various exotic animals faces the challenges posed by hunters and illegal dealers in wildlife. The Act contains provisions for severe penalties for violation.

However, something that needs to be noted is that prescribing penalties for environmental offenses is one thing, and the effectiveness of these penalties in reducing the instances of environmental offenses is another. Over recent years it has been realized that the current regime of penalties is not sufficient to overcome the problem of environmental crimes.²⁸ Penalties can become effective only when there is public awareness regarding environmental concerns and the prosecuting agencies are diligent in their work²⁹

It can be concluded that in India laws are in place that penalize environmental offences. However, these laws are proving to be insufficient. Their effectiveness can be increased by making the public aware of environmental concerns and ensuring efficient practices amongst the prosecuting agencies.

2. Guardians of Nature: Enforcing Environmental Laws in the USA

Now let us see various environmental violations that have been made punishable in the USA

a) Pollution

In the USA, the Clean Air Act, enacted in 1963, and the Clean Water Act, enacted in 1972, provide for penal provisions for discharging pollutants into the air or the water without permission from the proper authorities or for falsifying environmental compliance records.³⁰

b) Illegal Dumping

²⁸ Kalnawat, A., Shanthi, K. and Kulkarni, S.J., 2022. LEGAL DIMENSIONS OF ENVIRONMENTAL CRIME. *Russian Law Journal*, 10(4), p.41.

²⁹ Singh, T., 2022. Environmental Crimes in India: An Analysis. *Jus Corpus LJ*, 3, p.254.

³⁰ Fowler, L., 2014. Assessing the framework of policy outcomes: The case of the US Clean Air Act and Clean Water Act. *Journal of Environmental Assessment Policy and Management*, 16(04), p.145.

Just like in India, individuals or entities found guilty of illegal dumping may face fine imprisonment, or both under the Resource Conservation and Recovery Act, enacted in 1976.³¹

c) Wildlife hunting and Trafficking

Similar to India the USA has also banned hunting of certain animals. Trade in certain species of wild animals has also been made illegal in the USA and violations can attract both fines and imprisonment under the Endangered Species Act, enacted in 1973.³²

Just like India, the USA has also seen a rise in environmental crimes in the recent past despite penal sanctions.³³ Just like India the USA also needs to increase the efficiency of its prosecuting agencies and make its public environmentally aware. So, it can be concluded that India and the USA both have very clear laws relating to environmental crimes in place. However, both nations suffer from ineffectiveness in implementing the laws which can be overcome with proper training, proper allocation of resources, and spread of awareness.

V. Analysis of Judicial Review Involving Constitutional Challenges to Environmental Regulations: Balancing Environmental Protection and Individual Rights

1. Judicial Balancing Act: Ensuring Environmental Protection and Individual Rights

The Supreme Court in the USA while dealing with the scope of powers of the Environmental Protection Agency (EPA), which draws its powers from the Clean Air Act, interpreted whether EPA can regulate the emission of greenhouse gases. Since the powers were not explicitly given to it and thus there was a legal conflict. It was finally held that to address climate change it is very necessary to limit greenhouse gases by empowering EPA³⁴. In multiple Indian cases, since right to environment is explicitly mentioned in the Indian Constitution and has been interpreted within the scope of the right to life. Extending the right to life means- the right to live in a clean and healthy environment. It is thus very essential to balance individual rights against the overall responsibility of environmental protection.

Courts often review the scope of legislative authority when assessing the constitutionality of environmental regulations. For example, in *Massachusetts v. EPA* (2007), the U.S. Supreme Court ruled that the Environmental Protection Agency (EPA) had the authority to regulate greenhouse gases under the Clean Air Act, affirming the agency's regulatory powers to address climate change. Courts in India have considered whether environmental regulations infringe upon fundamental rights guaranteed by the Constitution, such as the right to property, liberty, and a clean environment. In *M.C. Mehta v. Union of India* (2002), the Indian Supreme Court recognized the right to a clean environment as a fundamental right under Article 21 of the Constitution and imposed strict liability on vehicular polluters, balancing environmental protection with individual rights³⁵.

³¹ Kollikkathara, N., Feng, H. and Stern, E., 2009. A purview of waste management evolution: Special emphasis on USA. *Waste management*, 29(2), p.974.

³² Organ, J.F., Geist, V., Mahoney, S.P., Williams, S., Krausman, P.R., Batcheller, G.R., Decker, T.A., Carmichael, R., Nanjappa, P., Regan, R. and Medellin, R.A., 2012. The North American model of wildlife conservation. *The Wildlife Society Technical Review*, 12(04).

³³ Greife, M., Stretesky, P.B., Shelley, T.O.C. and Pogrebin, M., 2017. Corporate environmental crime and environmental justice. *Criminal Justice Policy Review*, 28(4), p.327.

³⁴ *Massachusetts v. EPA*, 549 U.S. 497 (2007).

³⁵ *Mehta v. Union of India*, 2002 (4) SCC 356.

Proportionality and reasonability as principles become very important in the matters of adjudication of environmental concerns, they must not be too excessive or arbitrary. In a case where an organisation had filed a petition against the water pollution being caused by the defendant company, the US Supreme Court court by applying the principles of reasonability expanded the scope of *locus standi* or the ability to file a suit even though the organisation's members were merely using waters for recreational purposes and not for any serious usage³⁶.

2. Finding Equilibrium: Navigating Environmental and Economic Rights in Legal Discourse

In a dispute about environmental protection law, there is always a competing interest between environmental protection and the economic individual interests or rights. This many times leads to a dichotomy hovering upon the judiciary as to which right prevails over the other. There is the right to life which encompasses the right to a clean environment³⁷ or the fundamental freedom of business, trade and profession promising property rights and economic interest. In *Lucas v. South Carolina* case³⁸, the petitioner had purchased residential lots which were later declared critical coastal areas by the government and therefore Lucas was not no longer allowed to build a house. Now the USA Supreme Court while interpreting the conflicting rights concluded that when the direction of the state deprives the owner of the economic usage of his land, then the owner must be paid just compensation to balance the interest of the environment and his economic interest.

The court while interpreting the conflicting issues between economic rights and environmental rights many times also takes into consideration the public interest and the idea of the maximum common good. In the case of the *Indian Council for Action (1996)*³⁹ it was held that the development of the economy cannot happen at the cost of health and the environment. Another important requirement to adjudicate environmental issues is for the court to be adaptive and flexible, which means incorporating the changing meanings and scientific pieces of evidence for the decision-making. We can therefore say that the Courts in India and the USA both have played very important roles in establishing and reiterating the value and importance of Environmental law in their respective societies.

VI. Policy Recommendations and Future Directions for Enhancing the Effectiveness of Legal Mechanisms for Protecting Environmental Rights

1. Forging Paths to Environmental Equity: Strategies for Sustainable Development in the USA and India

The USA with the increasing contaminants must level up the safety standards in plants and factories and promote renewable energy. The USA can establish mechanisms for greater public participation making the stakeholders, namely the government, the industry, and the public (through civil society), work in synergy⁴⁰. To address the gap between the haves and the have-

³⁶ *Friends of the Earth, Inc. v. Laidlaw Environmental Services*, 528 U.S. 167 (2000).

³⁷ *Subhash Kumar v. State of Bihar*, AIR 1991 SC 420; *M.C. Mehta v. Union of India* AIR 1987 SC 1086; *Vellore Citizens Welfare Forum v. Union of India*, AIR 1996 SC 2715.

³⁸ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992).

³⁹ *Indian Council for Action v. Union of India*, AIR 1996 SC 1446.

⁴⁰ Ashford, N.A., 2012. The legacy of the precautionary principle in US law: The rise of cost-benefit analysis and risk assessment as undermining factors in health, safety and environmental protection. In *Implementing the precautionary principle* (pp. 352-378). Routledge.

nots based on racial susceptibility, since not only are the pollutants dangerous to human beings but people of colour are clinically more susceptible thus increasing their fatality rate and this is also combined with the factor of inaccessibility to healthcare⁴¹. The government in pursuance of the constitutional idea of positive discrimination must make special funds for addressing the issue. These could improve the legal mechanism of the USA.

In India, effective implementation of environmental laws, regulations, and rules must be carried out by improving its institutional capacity by allocating more funds. Legislative action must be carried out to expedite the hearings and adjudication of the disputes⁴². The environment works on the models of interdependencies and thus it is sustainable without external force. This fundamental requirement was defeated by the foreign approach of the governments and bureaucrats who in pursuance of the colonial mindset pushed the indigenous and tribal populations out of their ecology and denied the requirement of environmental impact assessment. The action of recognising forest rights⁴³ and the inclusion of traditional knowledge could be a big step towards the effective implementation of environmental law. Environmental concerns must be kept in mind while coming up with urban budgeting and infrastructures taking both development and sustainability as equal priorities.

2. Charting a Course for Environmental Innovation: Future Directions in Climate Policy and Biodiversity Conservation

The USA must now further research the nuances of climate change and must take policy steps towards climate resilience, it is also crucial for the USA to transform itself into a low-carbon economy by incentivising renewable sources⁴⁴. The unequal environmental access is also an issue wherein research must be undertaken since the socio-economic position of communities is dictating their susceptibility to unclean air and water and medical issues associated with them. Future research may also be carried out on potential legislative reforms to enhance companies' accountability for environmental harm caused by their processes, sustainability reports and full disclosure should be incorporated into the statutory requirements.

In India, due to its tropical position, a huge diversity of species is available and we must conduct further research on the protection of endangered species. Examples such as the elevated road through Pench forest in Madhya Pradesh standing as a testament to co-living measures with the wildlife must be applied in other such fields⁴⁵. To research potential legislative reforms to enhance protection for endangered species, habitats, and ecosystems, including measures to strengthen protected area management, regulate wildlife trade, and promote sustainable land-use practices. To improve environmental governance mechanisms at the national, state, and local levels and to improve coordination among government agencies

⁴¹ Jbaily, A., Zhou, X., Liu, J., Lee, T.H., Kamareddine, L., Verguet, S. and Dominici, F., 2022. Air pollution exposure disparities across US population and income groups. *Nature*, 601(7892), pp.228-233.

⁴² Malhotra, A., Mathur, A., Diddi, S. and Sagar, A.D., 2022. Building institutional capacity for addressing climate and sustainable development goals: Achieving energy efficiency in India. *Climate Policy*, 22(5), pp.652-670.

⁴³ Bijoy, C.R., 2017. Forest rights struggle: the making of the law and the decade after. *Law Env't & Dev. J.*, 13, p.73.

⁴⁴ Brody, S., Grover, H., Lindquist, E. and Vedlitz, A., 2010. Examining climate change mitigation and adaptation behaviours among public sector organisations in the USA. *Local Environment*, 15(6), pp.591-603.

⁴⁵ Habib, B., Saxena, A., Jhala, Y.V. and Rajvanshi, A., 2020. *Monitoring of animal underpasses on National Highway 44 (Earlier 7) passing through Pench Tiger Reserve, Maharashtra, India* (p. 30). TR. No. 2020/09.

and stakeholders. Research to apply sustainable development measures across the sectors such as agriculture, forestry, fisheries, and urban development.

3. Fortifying Environmental Law Enforcement: Strategies for a Sustainable Future

It is recommended that both countries should focus on strengthening the enforcement of existing environmental laws by providing adequate resources and training to prosecuting agencies. This includes improving investigation techniques, increasing the number of environmental inspectors, and establishing specialized environmental courts for reaching swift justice. Comprehensive public awareness campaigns to educate citizens about the importance of environmental protection, the consequences of environmental crimes, and ways to report violations must be carried out. This can be done through legal aid programs of law colleges, schools, media, community outreach programs, and digital platforms.

Utilizing advanced technologies like satellite monitoring, drones, and data analytics to oversee environmental activities, identify violations, and gather evidence for legal action can enhance surveillance and enforcement endeavors, thereby complicating the evasion of detection by offenders. Encouraging cooperation among governmental bodies, law enforcement agencies, NGOs, and local communities is essential for effectively addressing environmental crimes. This entails exchanging information, coordinating enforcement efforts, and engaging stakeholders in decision-making processes. Reassessing and potentially modifying current penalty frameworks is necessary to ensure their effectiveness in deterring environmental offenses. This might entail raising fines, imposing stricter penalties on repeat offenders, and considering alternative sentencing measures such as community service or environmental rehabilitation.

Enhancing global cooperation and collaboration concerning environmental concerns involves sharing successful strategies, exchanging vital information, and aligning efforts to address cross-border environmental offenses like unlawful wildlife trade and pollution. Encouraging businesses and industries to embrace sustainable practices via incentives, tax incentives, and regulatory actions is crucial. This approach can mitigate the cumulative environmental footprint and mitigate the likelihood of future transgressions. By adopting these suggestions, both India and the USA can enhance their ability to combat environmental crimes effectively and safeguard their ecological resources for succeeding generations.

VII. CONCLUSION

Thus, both India and the USA have established extensive legal frameworks to protect the environment, drawing from constitutional principles and legal interpretations. In India, environmental protection has been integrated into state policy and citizens' fundamental duties, with courts issuing landmark rulings recognizing the right to a clean environment. Similarly, in the USA, despite the absence of explicit environmental provisions in the federal Constitution, the judiciary has interpreted constitutional clauses to address environmental issues, supported by pivotal legislation like the Clean Air Act and the Clean Water Act.

However, challenges persist in effectively enforcing environmental laws in both countries. Instances of environmental crimes have increased, highlighting the need for improved enforcement, public awareness, and collaboration among stakeholders. Strengthening international cooperation is vital, particularly for tackling cross-border environmental offenses such as wildlife trafficking and pollution.

Recommendations for enhancing environmental protection mechanisms include utilizing advanced technologies for surveillance, fostering collaboration among government bodies, law enforcement agencies, NGOs, and local communities, and reviewing penalty structures to deter environmental offenses. Encouraging businesses to adopt sustainable practices through incentives and regulatory measures can also mitigate environmental harm.

Further research and legislative reforms are necessary to address emerging environmental issues like climate change and biodiversity loss. Improving environmental governance at all levels and enhancing the synergy between criminal laws and constitutional policies for sustainability are crucial steps. By implementing these measures, both India and the USA can effectively combat environmental crimes, preserve natural resources, and promote a sustainable future for generations to come.