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Regulating Artificial Intelligence In The Age Of Environmental Crisis: A Constitutional Perspective from India

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ABSTRACT

Artificial Intelligence (AI) in recent years has experienced an unprecedented surge with it gaining global acceptance as an emerging transformative technology that may reconfigure our existing quality of life. With environmental deterioration being a major concern in India, AI offers new possibilities for effective automated enforcement of environmental rules and regulations, given the increased industrialisation and urbanisation en route to the vision of Viksit Bharat 2047.

However, rapid expansion of AI simultaneously raises serious environmental concerns. It has a notable environmental footprint due to increased energy consumption, CO2 emissions, toxic electronic waste generation and excessive water usage in cooling centres which also confirms the presence of Digital Rebound Effect. Currently in India, there is no specific legal framework dedicated solely to regulate the environmental impacts of AI.

This paper examines the intricate triangle of Artificial Intelligence, Environmental degradation and constitutional principles such as right to a healthy environment (under Article 21, Right to Life), sustainable development and the duty of state to protect and improve the environment (under Article 48A). While AI-driven technologies pose great potential for automated environmental enforcement, it gives rise to pressing questions on constitutional protection, legal acceptability and public accountability. This paper adopts the doctrinal method of research by using both primary and secondary sources including journal articles, newspaper reports, relevant constitutional and statutory provisions and pertinent judicial pronouncements. It advocates for the need to develop new legal and ethical frameworks for integrated environmental-digital governance that ensures sustainable AI advancement in line with democratic values and environmental justice.

Keywords: *Artificial Intelligence, Environmental degradation, Constitutional principles, Fundamental Rights, Sustainable Development*

1. INTRODUCTION

Today's era, also referred to as the Digital Age or the Information Age is characterised by rapid advancements in information technology and expansion of the internet. This growth paved the way for the Fourth Industrial Revolution also called the 4IR or Industry 4.0 which refers to an

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era of developmental resurgence coalescing the digital, physical and biological systems. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, coined the term

Fourth Industrial Revolution and discussed how within its ambit Artificial Intelligence (AI) and robotics have started to converge with the physical, digital and biological worlds, thereby revolutionizing economies, industries and societies.[2]

Artificial Intelligence (AI), in recent few years has witnessed a significant growth globally, redefining our way of life. It has emerged as a transformative global technology due to significant advancements in machine learning and deep learning, with powerful AI models and algorithms outperforming humans.

India too has swiftly positioned itself as a key player in the global AI race as it stands at the cusp of an AI-driven transformation restructuring lives and shaping nation's progress. India's AI vision extends beyond technology to be rooted in inclusion and empowerment. It is being manifested to solve real-world challenges, provide enhanced public services and accessible opportunities to all citizens.

Initiatives like the IndiaAI Mission and Centres of Excellence for AI form the core of this transformation.[3] This technological momentum lays a strong foundation for India to emerge as a global AI leader and is closely tied to the national vision of Viksit Bharat 2047 which aims at an exponential growth surge fuelled by digital innovation and industrial expansion. As per a NITI Aayog report it is estimated that AI holds the potential to add between 500 and 600 billion dollars to India's GDP by 2035.[4] In this context, AI functions not merely as a tool for efficiency but as a primary catalyst for dynamic governance and economic resilience.

Along with the rapid economic growth India is witnessing, another major issue looms in the background- an escalating environmental crisis characterised by air, water and land pollution, climate change, biodiversity loss, waste mismanagement and unsustainable resource exploitation. Deterioration of the environment and the ecosystem have been a permanent effect of economic and industrial progress. This directly affects India's efforts at pursuing the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 for the purpose of ending poverty and protecting the environment by the year 2030; particularly SDGs 7 (Affordable and Clean Energy), 12 (Responsible Consumption and Production) and 13 (Climate Action).

In this regard, AI has emerged as a powerful innovative tool possessing great potential for environmental protection. It can play an important role by enabling enhanced energy efficient

[2] "The Fourth Industrial Revolution", *available at:* https://ixdf.org/literature/topics/the-fourth-industrial-revolution (last visited on March 28th 2026).
[3] Government of India, "Transforming India with AI" BACKGROUNDERS Press Information Bureau, (October 2025) *available at:* https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/oct/doc20251012664501.pdf (last visited on March 29th, 2026).
[4] Escandita Tewari, "India's AI Push Is Quietly Draining Its Energy, Resources, and Space", *The Quint,* 26 December 2025, *available at:* https://www.thequint.com/climate-change/what-will-be-the-environmental-cost-of-indias-ai-boom#read-more (last visited on March 29th 2026).

systems, waste management and climate change mitigation methods along with more effective monitoring of environmental compliance, predictive modelling of climate patterns and

automated enforcement of environmental regulations. It can act as a promising tool for strengthening environmental governance globally.

However, just like every coin has two sides, AI's positive influence is accompanied by its detrimental impact. The inherent paradox lies in AI's ability of being both a tool for automated environmental enforcement and a source of environmental degradation. There is a significant research gap in the area of ecological impacts caused by the increasing use of AI models and algorithms.

Large-scale infrastructure sustaining AI systems demands massive energy inputs, leading to the generation of significant amounts of carbon emissions, thereby exacerbating the climate-related challenges that AI itself seeks to address. On top of this, the cooling systems in large data centres rely on water-based technology, thus causing excessive water consumption. Another side to this AI expansion is the production of massive quantities of toxic electronic waste which if not properly disposed of can contaminate soil and groundwater.

Despite these challenges, Indian legal framework lacks dedicated mechanisms to regulate environmental implications of AI. India's environmental governance was built for traditional industries. It is yet to adapt to the material demands of contemporary digital infrastructure. Under the Environmental Impact Assessment (EIA) Notification of 2006, data centres are not subject to same stringent environmental scrutiny that apply to heavy industries such as thermal powe plants or chemical manufacturing units.[5]

The absence of a dedicated legal framework has compounded the regulatory vacuum bringing with it profound constitutional challenges. AI technologies directly impact the fundamental rights enshrined in Part III of the Constitution- particularly the Right to a Healthy Environment falling under the ambit of Article 21 (Right to Life).[6] This imposes both positive and negative obligations upon the State. Similarly, Article 48A of Directive Principles of State Policy mandates the State to protect and improve the environment, while, Article 51A (g) places a corresponding duty upon the citizens to protect and improve the natural environment.[7]

This paper seeks to examine the complex and evolving relationship between AI, environmental degradation and constitutional principles in India. It assesses the adequacy of India's legal response to AI-induced environmental concerns. It argues for a need to develop an integrated framework for an environmentally ethical governance that aligns with technological advancements and constitutional values, thereby recognising the intrinsically dynamic nature of the Constitution of India serving as the Grund norm for all statutes and policies.

[5] Squirrels' Data Intelligence, "The Thirsty Cloud: How India's AI Boom is Quietly Draining Urban Water" *The Squirrels 07 March 2026, available at:* https://thesquirrels.in/explainers/india-ai-data-center-water-crisis-11183329 (last visited on March 29th 2026).
[6] The Constitution of India, art. 21.
[7] The Constitution of India, art. 48A, 51A (g).

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2. CONCEPTUALISING THE AI-ENVIRONMENT PARADIGM

The relationship between Artificial Intelligence and the environment is complex, multifaceted and often paradoxical. While on the one hand it acts a powerful tool for strengthening environmental governance, its underlying infrastructural processes simultaneously accelerate ecological decline. The conjunction of AI and sustainability thereby has emerged as a crucial theme for contemporary research. As it catalyses progress towards a futuristic world order, more and more of its detrimental environmental ramifications are being identified.

2.1. Growth and Functioning of Artificial Intelligence

Artificial Intelligence has been defined by the Encyclopaedia Britannica as,

> *"The ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience."*[8]

Technologies such as generative AI (GenAI), natural language processing and automated decision making systems are increasingly being integrated into governance, industry and environmental management. A major benefit of AI is its ability to detect patterns in data, as in anomalies and similarities, and predict future outcomes on the basis of historic knowledge.

This AI proliferation has been facilitated by the increasingly advanced AI infrastructures, also called AI stacks which include the various hardware and software required to process digital information. Data centres form the bedrock of AI operations, designed for the computationally intensive tasks of training and running inference for Artificial Intelligence and machine learning models.[9] These data centres can take a heavy toll on the planet.

2.2. Environmental Costs of AI

Explosion of AI has a negative side when it comes to the environment. The rapidly booming data centres which house AI servers are producing large quantities of electronic waste. The Global E-waste Monitor 2020 report indicates that e-waste generation reached a record 53.6 million metric tonnes, with only 17.4 % being officially collected and recycled.[10] Another major issue is the continuous and severe energy consumption intensifying greenhouse gas emissions.

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[8] B.J. Copeland (ed.), "Artificial Intelligence", *Encyclopaedia Britannica,* 27 March 2026*, available at:* https://www.britannica.com/technology/artificial-intelligence (last visited on March 29th 2026).

[9] "AI Data Center", *Wikipedia, available at:* https://en.wikipedia.org/wiki/AI_data_center (last visited on March 29th 2026).

[10] Vanessa Forti, Cornelis Peter Baldé, Ruediger Kuehr, Garam Bel, *The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential, (*2020) (United Nations University/United Nations Institute for Training and Research, International Telecommunication Union & International Solid Waste Association) available at: https://ewastemonitor.info/wp-content/uploads/2020/11/GEM_2020_def_july1_low.pdf (last visited on March 30th 2026).

A study by Strubell et al., (ACL 2019)[11] found that training a single cutting-edge AI model can produce carbon dioxide emissions comparable to those generated by five cars over their entire lifetimes. They also deplete billions of gallons of water for keeping all that computer hardware cool. Thus, the expansion of AI is directly associated with a hike in unsustainable usage of natural resources.

2.2.1. Energy Consumption

The growth of AI accompanies with it substantial energy consumption in global data centres. Training and operation of advanced AI models demands immense computing power. As per reports, in 2024, data centres alone consumed approximately 415 TWh of electricity which is equivalent to approximately 1.5% of the total global demand. This figure is estimated to rise upto nearly 945 TWh or around 3% of the global electricity consumption by 2030.[12] This large amount of electricity generation leads to increased greenhouse gas emissions and global warming since it relies on non-renewable sources of energy such as fossil fuels like coal and natural gas and their unsustainable extraction.

2.2.2. Excessive Water Usage

On top of the electricity demand, studies indicate that data centres used for AI consume huge quantities of water during construction and operation. As per scientists' calculations, AI infrastructure uses six times higher the amount of water than that used in Denmark, which has a population of six million.[13]

To prevent overheating, powerful cooling systems are required in AI data centres. This heightens the risk of shortages for consumption and agriculture in water-scarce areas. In 2024, data centres accounted for approximately 150 billion litres of water, with this figure being expected to double by 2030. As of January 2026, India is a host to approximately 271 data centres taking up to 23 million square meters (CBRE 2025) of land.[14] This demand for water becomes a problem when a quarter of humanity already lacks access to clean water and sanitation.

2.2.3. Creation of E-waste

[11] E. Strubell, A. Ganesh, and A. McCallum, "Energy and policy considerations for deep learning in NLP" *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics,* 3645–3650 (2019) *available at:* https://aclanthology.org/P19-1355/ (last visited on March 29th, 2026).
[12] Rusheen Patel, Nikhil Mahalingam, Aadi Patel, "The Environmental Impact of AI Servers and Sustainable Solutions*", available at:* https://arxiv.org/pdf/2601.06063 (last visited on March 29th, 2026).
[13] Pham Nhat Linh Chi, Le Thi Minh Hang, Nguyen Viet Vuong, "The negative impacts of AI on the environment and legal regulation", 11, *International Journal of Law* 124-127 (2025).
[14] Vishal Tripathi, Debanjan Bagui, Prateek Aggarwal, Peter Hulshof, Arushi Chopra, Daksh Jain, and Avantika Vashishtha "Scaling India's Data Centre Ecosystem: Stakeholder perspectives on Infrastructure, Energy, and Resilience" *available at:* https://www.ceew.in/sites/default/files/ceew-data-centre-study-web-ready-final.pdf (last visited on March 30th 2026).

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Each new generation of AI model requires more powerful and specialised computing equipment substantially shortening hardware lifecycles. Older devices quickly become obsolete as organisations join the race to adopt the latest, most efficient hardware to keep up

with the rising computational needs. This constant hardware renewal generates constant electronic waste containing toxic substances like mercury, lead and cadmium as per United Nations reports. Futurism said that data centres also pose an intensified risk of fires. It pollutes the soil, water and adversely affects human health along with lasting impacts on the animals and natural environment.

2.2.4. Carbon Emissions

AI infrastructure's reliance on non-renewable energy sources has significant implications for carbon emissions and overall environmental impact. Carbon emissions linked to increased consumption directly contribute to AI's carbon footprint. They raise Earth's temperature, lead to biodiversity loss and increase extreme weather events.

India is a party to the Kyoto Protocol and Paris Agreement, however as per the Press Information Bureau's release on 21st March 2022 the provisions of these treaties do not make it obligatory on India to stop the carbon emissions. Despite of this fact, India remains committed to fulfil the agreement's commitments, since, it is a duty towards future citizens to be able to live in a clean and pollution-free environment.

2.3. The Digital Rebound Effect

Digital Rebound Effect explains how increased efficiency from digital technologies can simultaneously lead to their overconsumption, consequently offsetting the intended environmental benefits. This spur results in increased overall energy consumption and resource utilisation, amplifying the aggregated environmental footprint.

2.4. Application of AI in combating Environmental Challenges

In spite of its detrimental effects, AI has the potential to help address varied environmental concerns by helping us develop novel solutions such as optimised product design, more efficient power generation and so forth. To be able to achieve this objective of ethical AI both people and institutions must be interested in achieving such solutions. Machine learning and Deep learning are at the forefront of transforming environmental sustainability in the present age.

One such concept that has recently emerged is Green AI which prioritises minimal energy consumption while also not sacrificing AI's performance. It will help strike a balance between the AI ambition and pre-existing decarbonisation goals to ensure long term sustainable growth. Table 1 represents examples of how AI can assist in combating environmental concerns.

Table 1: Application of AI and their uses

Application of AI	***Method and use***

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Air Quality Monitoring	Using satellite imagery, ground-based sensors
Disaster Management and Resilience	Using predictive analytics and weather data
Forest and Wildlife Conservation	Autonomous drones and surveillance cameras, analyse satellite data
Waste management	Enhancing waste sorting, boosting recycling rates and promoting circular economy
Water Resource Management	Real time data monitoring, predict drought conditions, smart grid technology

Source: Sumitra Devi, Kankana Choudhury, "Environmental Impact of Artificial Intelligence and its Regulation in India", 3, *The Academic: International Journal of Interdisciplinary Research* 1201-1211 (2015) *available at:* https://theacademic.in/wp-content/uploads/2025/03/111.pdf (last visited on March 28th, 2026).

Additionally, AI can enable the accomplishment of 134 targets of 169 total of the Sustainable Development Goals 2030 UN Agenda.[15] AI can offer considerable benefits to these goals, especially by way of improved energy efficiency, waste reduction and climate monitoring. There is direct impact of AI towards achieving:

a. SDG 7: Affordable and Clean Energy

b. SDG 12: Responsible Consumption and Production

c. SDG 13: Climate Action

Its contribution in mitigation of environmental challenges in line with SDG's is depicted in Table 2.

Table 2: AI's Contributions to Sustainable Development Goals (SDGs) and related Environmental Challenges

SDG's	**AI's Contribution**	**Environmental Challenges**	**Strategies for Mitigation**
SDG 7: Affordable	▪ Optimization of renewable energy systems (solar,	▪ High energy consumption	▪ Use of energy-efficient AI

[15] United Nations, *"The 2030 Agenda for Sustainable Development's 17 Sustainable Development Goals (SDGs)"*, 4th SDG Youth Summer Camp – SDG Resource Document (2020), *available at:* https://sdgs.un.org/sites/default/files/2020-09/SDG%20Resource%20Document_Targets%20Overview.pdf#:~:text=Goal%3A%20This%20document%20enables%204th,under%20its%20targets%2C%20iii)%20identify (last visited on March 28th, 2026).

and Clean Energy	wind) via predictive algorithms. ▪ Smart grids for efficient energy distribution. ▪ AI-driven electric vehicle route optimization and battery management.	during training of AI models. ▪ Increased power demand in data centres.	algorithms (Green AI). ▪ Renewable energy powered data centres. ▪ AI for predictive maintenance of renewable energy infrastructure.
SDG 12: Responsible Consumption and Production	▪ AI-driven recycling and waste management. ▪ Supply chain optimization to reduce resource waste.	▪ E-waste generation from rapidly obsolete AI hardware. ▪ Resource-intensive AI model training.	▪ Circular economy principles for AI hardware. ▪ Efficient algorithms to reduce computational needs.
SDG 13: Climate Action	▪ AI models for climate predictions and disaster management. ▪ AI-based carbon capture technologies. ▪ Real-time carbon emission monitoring.	▪ Significant carbon emissions from AI model training. ▪ Increased energy consumption in AI driven climate solutions.	▪ Optimization of AI models for energy efficiency. ▪ Use of renewable energy for AI-driven climate initiatives. ▪ AI for real-time emissions reduction and carbon footprint tracking.

Source: Pooja Soni, Dr. Jayashri Vajpai, Ravi Soni, "Impact of Artificial Intelligence on Environment from the perspective of Sustainable Development Goals: A Review" *10 International Journal of Novel Research and Development, 5 May 2025.*

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3. CONSTITUTIONAL CHALLENGES IN AI DEPLOYMENT IN INDIA

There is a need for development of regulation of Artificial Intelligence in India with respect to environmental sustainability within the constitutional framework. There have been progressive developments to prioritise environmental protection in governance models.

While the Constitution does not explicitly mention new technologies such as AI, it can be argued that the provisions of the Constitution offer a strong normative basis for governing the environmental implications of new technologies such as AI, through the incorporation of human rights, directive principles, and new developments in environmental principles. The emergence of Industrial Revolution 4.0 (4IR), especially with regards to rise and growth of

Artificial Intelligence, directly affects Fundamental Rights of citizens, pressing the State to perform its duties.

3.1. Constitutional Framework

3.1.1. Right to Life and Clean Environment: Article 21[16]

The Right to a clean and healthy environment is an intrinsic part of Right to Life under Article 21. The Supreme Court has always defined the word "life" in Article 21 of the Constitution as not only the right to live, but also the right to live a life of dignity, safety, and with a clean environment, which is necessary for a decent quality of life. In short, if one is forced to breathe in polluted air, drink unsafe water, or live in a place where there is dangerous industrial pollution, then one's fundamental right as enshrined in Article 21 is being violated.

In 1991, Supreme Court's judgement of *Subhash Kumar v. State of Bihar (1991)*[17], highlighted that Right to Life includes the right of enjoyment of pollution-free water and air. This marked a watershed moment as the courts now formally acknowledged wholesome environment as part of Fundamental Rights.

In the landmark judgment *of M.C. Mehta v. Union of India (1987)*[18], it was underlined by the Supreme Court that there needs to be a balance between development and protection of the environment. This judgment forms the base and guiding principle in discussions on the environment interface of AI.[19]

In its latest significant judgement of *M.K. Ranjitsinh v. Union of India (2024)*[20], the apex court formally acknowledged the right to a healthy environment and right to be free from harmful consequences of climate change as a fundamental right emanating from Article

[16] The Constitution of India, art. 21.
[17] *Subhash Kumar v. State of Bihar,* AIR 1991 SC 420.
[18] *M.C. Mehta v. Union of India,* AIR 1987 SC 1086.
[19] Snigdha Sharma, Dr. Shailja Thakur, "Impact of Artificial Intelligence on the Environment", *5, International Journal of Research Publication and Reviews* (2024).
[20] *M.K. Ranjitsinh v. Union of India,* 2024 INSC 280.

21 and Article 14. Court's recognition of climate change hampering the fundamental rights poses potential for a legal framework within which AI innovation must be monitored and evaluated.

The environmental harm caused by AI and its infrastructure draws inference from these precedents as being violative of citizens' Fundamental Rights, thereby warranting constitutional scrutiny.

3.1.2. Directive Principle of State Policy: Article 48A[21]

While Article 21 forms the enforceable backbone, Article 48A establishes the broader environmental mandate for the state. Article 48A was inserted by the Constitution (Forty-second Amendment) Act, 1976[22]. Falling under the Directive Principles of State Policy it directs the State to protect and improve the environment and safeguard India's wildlife and forests. This constitutional reform came about as a result of a global environmental movement that followed the 1972 Stockholm Conference on Human Environment.

Directive principles serve as the normative framework for governance even if they are not directly enforceable in the courts. This principle becomes particularly relevant in the present age of AI, where State is trying to promote innovation in line of Viksit Bharat 2047 vision while simultaneously strengthening environmental protection orders.

3.1.3. Fundamental Duty: Article 51A (g)[23]

Fundamental Rights granted by our Constitution are accompanied by corresponding Duties. Every citizen is obliged to abide by them. They were also inserted in the Constitution through the same 42nd Amendment. Article 51(g) states that it shall be the duty of every citizen of India to protect and improve the natural environment including lakes, rivers, forests and wildlife. This provision mirrors Article 48A but differs in its focus on individual citizens responsibility instead of the state's obligation.

In the contemporary context, this duty can be extended to both individuals and corporate entities taking part in the development and consumption of AI. Digital Rebound Effect comes into picture reinforcing the need for environmentally responsible technological practices.

Article 48A and 51A(g) together create a dual responsibility structure- the state's responsibility to protect environment by way of policy priority, and citizens fundamental duty to follow sustainable practices to conserve the environment. Merging these two with the enforceable

[21] The Constitution of India, art. 48A.
[22] The Constitution (Forty-second Amendment) Act, 1976.
[23] The Constitution of India, art. 51A (g).

Right to Life under Article 21 creates a robust constitutional foundation for environmental protection in India.[24]

This expansion, however, needs to be checked as per Article 14, which grants the right to equality, and Article 21, which grants the right to privacy, so that AI does not become a tool of arbitrary surveillance. The historical judgment of *K.S. Puttaswamy v. Union of India (2017)*[25] incorporated informational privacy as a fundamental right and laid out the three-pronged test for violation, i.e., legality, necessity, and proportionality. Therefore, the AI tools that are used by the regulation authorities need to be lawful, legitimate, and least restrictive in achieving a legitimate environmental objective.[26]

3.2 Constitutional Principles for Sustainable Development

Salient principles underlining the concept of sustainable development were first recognised in the Rio Declaration of 1992 and Agenda 21. They include- inter-generational equity, use and conservation of natural resources, environment protection, Precautionary Principle, Polluter Pays Principle, Principle of liability to help and cooperate, Poverty Eradication and Principle of Public Trust.[27]

The historical judgement of *M.C. Mehta v. Union of India (1987)*[28] comes at the forefront of any discussion on environmental rights in India. The apex Court in this judgement established crucial environmental doctrines such as the Polluter Pays Principle, the Precautionary Principle, and the Public Trust Doctrine. These principles remain central to the Indian environmental law today.

In another pivotal judgement of *A.P. Pollution Control Board v. Prof. M.V. Nayudu* (1999)[29], the Supreme Court reinforced the application of the Precautionary Principle, holding that in cases of scientific uncertainty, burden of proof lies on the developer to demonstrate that their project will not lead to any ecological harm. This case also laid the groundwork for formation and creation of the National Green Tribunal in 2010 as well as the need for specialised environmental courts.

In *Vellore Citizens Welfare Forum v. Union of India (1996)*[30], the highest court acknowledged Precautionary Principle and Polluter Pays Principle as essential features of sustainable development, rooted in Articles 21, 47 and 48A of the Constitution. This decision

[24] "Right to a Healthy Environment in India: Constitutional Protections Explained", 16 October 2025, *available at:* https://evs.institute/environmental-legislations/right-to-healthy-environment-india-constitutional-protections/#google_vignette (last visited on March 30th, 2026).
[25] *K.S.Puttaswamy v. Union of India And Ors.*, (2017) 10 SCC 1.
[26] Varsha Singh and Amit Kumar Singh, "AI and Environmental monitoring in India: Legal frameworks for automated enforcement", 5, *International Journal of Law, Justice and Jurisprudence* (2025).
[27] Sunil Mittal and Hardeep Kaur, paper entitled "Environmental Management" (Ministry of Human Resource Development) *available at:* https://ebooks.inflibnet.ac.in/esp12/ (last visited on March 29th, 2026).
[28] *M.C. Mehta v. Union of India,* AIR 1987 SC 1086.
[29] *A.P. Pollution Control Board v. Prof. M.V. Nayudu,* 1999 AIR SCW 434.
[30] *Vellore Citizens Welfare Forum v. Union of India*, 1996 AIR SCW 3399.

was important because it formally acknowledged internationally recognized environmental principles within India's domestic legal system.

3.3. Implications for Policy Making and Legislation

The integration of constitutional provisions with judicially evolved principles in the present context of AI highlights the growing need for regulation of environmental impacts caused by rapid technological advancements. Various environmental laws shaped by the constitutional mandates were propelled by the varied judicial pronouncements such as the creation of The Environment (Protection) Act, 1986[31]; The Water (Prevention and Control of Pollution) Act, 1974[32]; The Air (Prevention and Control of Pollution) Act, 1981[33]; The Forest Conservation Act, 1980[34]; and The Wildlife (Protection) Act, 1972[35].

Public Interest Litigation (PIL) under Article 32 and 226 of the Constitution, empowers citizens to challenge polluters, hold the government accountable, and push for stronger environmental protections, simply on the basis that environmental harm is a violation of the fundamental right to life. The evolution of environmental constitutionalism and judicial principles offers significant scope for their application to the upsurging environmental challenges that have emerged with the growth of AI. Firstly, the extended definition of Article 21 can be relied upon in dealing with environmental degradation caused by AI infrastructure, such as carbon emissions from data centres, excessive water consumption, and waste generated by electronic devices. Secondly, the principle of sustainable development calls for balancing AI innovation with environmental concerns. This means that the State and other actors must embrace environmentally sound practices in AI. Thirdly, the Precautionary Principle is applicable in dealing with AI's effects on the environment making it possible for courts to require regulatory bodies to carry out prior assessments before giving approval for AI infrastructure. Lastly, the principle of Polluter Pays can be extended to cover technology companies and data centres in dealing with environmental degradation resulting from AI activities. The principle of Intergenerational Equity emphasizes the need to regulate AI in such a manner that it protects the environmental rights of future generations.

4. REGULATORY VACUUM IN INDIA

The emergence of Artificial Intelligence and its growing ecological impacts highlights the importance of law as the most effective tool to regulate AI. To ensure hand in hand development of AI consistent with environmental protection, legal regulations becomes necessary. Legal framework to combat the environmental impacts of AI is still emerging in India since its need is being increasingly recognised as pivotal for controlling AI's growing ecological footprint. However, the absence of dedicated and coherent regulatory structure creates significant governance gaps in arena of Artificial Intelligence which is becoming more and more

[31] The Environment (Protection) Act, 1986 (Act 29 of 1986).
[32] The Water (Prevention and Control of Pollution) Act, 1974 (Act 6 of 1974).
[33] Air (Prevention and Control of Pollution) Act (Act 14 of 1981).
[34] The Forest Conservation Act, 1980 (Act 69 of 1980).
[35] The Wildlife (Protection) Act, 1972 (Act 53 of 1972).

widespread. Such gaps are particularly concerning given India's commitment to environmental protection and sustainable development.

Existing laws such as the Environment (Protection) Act, 1986 were designed in a pre-digital era made to regulate traditional industries, thereby surpassing the unique challenges posed by AI technologies. Other acts such as the Information Technology Act, 2000, and the Digital Personal Data Protection Act indirectly govern aspects of AI but do not address its environmental footprint explicitly. Enforcement challenges also persist due to institutional limitations, lack of technical expertise and bureaucratic inefficiencies. A key limitation of the current framework is the absence of preventive and forward-looking regulations. India historically has had pattern of reactive nature i.e., it tends to responds to harm after it has occurred, rather than preventing it in advance.

However, the government recognizes the importance of implementing regulations and guidelines with the development of AI in line with the country's best interests, which include sustainability. Above all, the development and growth of AI is more intense, with a tendency to increase its negative impacts on environmental protection. Without human control, mainly through law, the development of complete artificial intelligence can mark the end of humanity. The proliferation, application, and operation of AI in life without any regulation by law will sooner or later put humanity in front of significant challenges in environmental protection.[36]

5. CURRENT POLICY FRAMEWORKS AND INITIATIVES

India officially took a step towards AI regulation in 2018 with the presentation of the National Strategy for Artificial Intelligence, or #AIForAll. The strategy identified key areas of focus for AI innovation, such as healthcare, education, agriculture, smart cities, and transportation. The developments include: Principles for Responsible AI (2021) and the Digital Personal Data Protection Act (2023).[37]

The National AI Strategy launched by NITI Aayog in 2018 follows prudent AI principles that include transparency but do not have the force of law. Experts have pointed out that though AI is expected to be highly beneficial in the field of environmental protection and sustainable development, it also poses serious environmental concerns in terms of huge energy consumption and e-waste generation.[38] By maintaining a balance between innovation and regulation, responsible development of AI can be sought while continuing progress in these critical areas.

Although the Information Technology Act, 2000 does not explicitly deal with environmental protection, it indirectly supports it by promoting paperless processes, secure data management, and cyber security for environmental systems.[39] Moreover, complementary

[36] Pham Nhat Linh Chi, Le Thi Minh Hang, Nguyen Viet Vuong, "The negative impacts of AI on the environment and legal regulation", 11, *International Journal of Law* 124-127 (2025).
[37] Digital Personal Data Protection Act (Act 22 of 2023).
[38] Akhand Pratap Singh Chauhan, "AI and Environment Law", Maheshwari & Co., September 11, 2025, *available at:* https://www.maheshwariandco.com/blog/ai-and-environment-law/ (last visited on March 30th 2026).
[39] Information Technology Act, 2000 (Act 21 of 2000).

measures such as the E-Waste Rules and the Digital India initiative further strengthen sustainability efforts within the IT sector.

The National Green Tribunal Act of 2010 has established a specialised judicial forum for the adjudication of environmental disputes along with provisions for scientific and technical expertise.[40] The Tribunal's evidentiary framework and approach to expert testimony may become relevant for matters concerning AI-generated environmental data and analysis.

6. INTEGRATING AI AND ENVIRONMENTAL REGULATIONS

India needs a forward-looking legal framework in order to harness the transformational promise of AI in environment-monitoring and enforcement. Such a framework must involve challenges associated to technology, process, constitutionality, and ethics in deploying AI. India needs its own hybrid model of AI powered environmental governance which aligns with its democratic principles. There is a need to update the existing regulations and laws to provide explicit protection against the use impact of AI tools along with emergence of standalone legislations addressing AI applications.[41]

New norms need to be framed under the Environment Protection Act of 1986 for the regulation of accuracy, validity, certification, and admissibility of AI-generated evidence, etc. There is also a need for urgent amendments to the Indian Evidence Act, so that norms are framed for the admissibility of AI-generated evidence, especially in environmental cases, and this evidence is transparent, explainable, traceable, and verified by humans.

AI and environment specialised division to provide technical expertise and policy coordination across various agencies must be created within the umbrella of Ministry of Environment, Forest and Climate Change.[42]

An environmental AI Ethics Board need to be set up for the regulation of AI comprising of technical experts, legal scholars and environmental advocates who would collectively ensure continuous oversight of AI systems and related ethical challenges.. There are also concerns of bias and overreach that need to be addressed. Another important factor that needs to be considered for the regulation of AI-generated evidence and for the success of environmental justice in India is that the law regulating and guiding AI innovations needs to be successful and this can be ensured by developing technical standards, proper investigation of AI performance related complaints and stringent reviews of high risk AI applications.[43]

[40] National Green Tribunal Act, 2010 (Act 19 of 2010).
[41] Sartor, Giovanni, and Andrea Lagioia. "The impact of the General Data Protection Regulation (GDPR) on artificial intelligence." 1-98 *European Parliamentary Research* Service (2020).
[42] Cath, C., Wachter, S., Mittelstadt, B. *et al.* "Artificial Intelligence and the 'Good Society': the US, EU, and UK approach" 24, *Science and Engineering Ethics* 505–528 (2018) *available at:* https://doi.org/10.1007/s11948-017-9901-7 (last visited on April 6th, 2026).
[43] Floridi, L., Cowls, J., Beltrametti, M. *et al.* "AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations" 28 *Minds & Machines*, 689–707 (2018) *available at*: https://doi.org/10.1007/s11023-018-9482-5 (last visited on April 6th, 2026).

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Other recommendations include formation of a Green AI Framework that emphasises environmental efficiency using energy-efficient models, renewable energy powered data centres. The existing Environmental Impact Assessment (EIA) must be expanded to involve mandatory assessments for large-scale AI systems in order to evaluate carbon emissions, water usage and ecological impact. This needs to be accompanied with training programs for the assessing staff, regulatory authorities, judicial officers and legal practitioners for optimal and efficient implementation.

7. CONCLUSION

India stands at the crossroad where the potential of Artificial Intelligence needs to be balanced with the requirement for responsible governance. As this paper has shown, AI is both a solution of and a contributor to environmental degradation. Constitution of India, acting as the Grund norm provides a strong normative foundation for ethical and sustainable governance.

The potential of AI in the context of India's environmental monitoring is huge. However, it is important that the application of AI in this regard be in conformity with the constitutional principles and the legal procedures that are in place. The existing laws are not in a position to deal with the enforcement of AI in this regard because they are not equipped with the standards that need to be maintained in this context. Thus, Environmental Constitutionalism acts as a powerful concept for the development of useful framework for analysing AI's role in environmental protection. The significance of the application of AI in the context of India's environmental monitoring has been emphasized in this paper.

The journey towards effective AI environmental governance is challenging, thus it is essential to develop a balanced system in which technological efficiency is correlated with transparency, fairness, and democracy. Successful implementation is only possible through consistent commitment and adaptation to technological and environmental challenges. Today's choices reflect our future. It is only through the integration of legal reform and technological advancement that India can guide the Global South in creating responsible model of AI-driven environmental governance in line with sustainability and democratic values.