

Electrosmog Pollution and the Right to Health: A Legislative Imperative for India

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Abstract

Electrosmog, the pervasive exposure to electromagnetic radiation (EMR) from mobile towers, Wi-Fi routers, electrical lines, and digital devices, has emerged as an invisible pollutant of the twenty-first century. While traditionally framed as an environmental concern, electrosmog also poses significant challenges to public health, necessitating a robust health law response. Scientific studies increasingly associate prolonged exposure to non-ionizing radiation with adverse physiological effects such as sleep disorders, cognitive impairment, headaches, and possible carcinogenic risks. Despite these potential harms, Indian law remains silent on recognizing electrosmog as a pollutant, leaving a critical regulatory vacuum. This paper argues that statutory recognition of electrosmog pollution is a legislative imperative for India, not only under environmental jurisprudence but also through the lens of health law and the constitutional guarantee of the right to health under Article 21 of the Constitution. The absence of specific regulation undermines the state's duty to protect citizens against emerging public health hazards in the digital age. By examining international standards such as the World Health Organization's precautionary guidelines and the European Union's precautionary principle, this study underscores the urgent need for India to adopt a precautionary and preventive legal framework. The paper proposes amendments to the Environment (Protection) Act, 1986 and incorporation of specific electrosmog regulations within public health law to establish permissible limits, monitoring mechanisms, and liability structures. It also emphasizes inter-sectoral coordination between environmental and health authorities to address the complex intersection of technology, environment, and human well-being.

Keywords: Electrosmog pollution, Public Health, Right to Health, Health Law, Electromagnetic Radiation, Legislative Framework

Introduction:

The twenty-first century has been rightly described as the digital age. The ubiquity of electronic devices, wireless communication systems, and information networks has transformed the way human beings interact, work, and even think. While the digital revolution has brought significant advantages in terms of connectivity, convenience, and economic growth, it has also introduced a new, largely invisible, and often overlooked form of pollution—electrosmog.¹ Unlike conventional pollutants that are tangible and perceptible—such as smoke, noise, or chemical effluents—electrosmog refers to the non-ionizing

¹ Ved Prakash Sandlas, "Non-Ionizing Electromagnetic Radiation Effects on Biological Systems and Protection Methods", Indian National Academy of Engineering (2014).

electromagnetic radiation (EMR) generated by mobile towers, Wi-Fi routers, high-voltage transmission lines, radars, and the countless gadgets that have become inseparable from modern life.²

The very invisibility of electrosmog makes it more insidious. Humans cannot see, smell, or taste electromagnetic radiation, yet its presence is constant, and its intensity is increasing in tandem with technological growth. Several scientific studies and reports have pointed out possible adverse impacts of long-term exposure to EMR on human health, ranging from sleep disturbances, headaches, and neurological stress to potential carcinogenic risks. The International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as “possibly carcinogenic to humans” (Group 2B).³ This classification itself calls for urgent precautionary measures.

In India, the scale of exposure is massive. With one of the world’s largest and fastest-growing telecommunications markets, the proliferation of mobile towers and rapid expansion of 4G and 5G networks has intensified electromagnetic exposure in densely populated regions. Yet, despite the growing concern, India’s statutory framework remains silent on recognizing electrosmog as a pollutant, either under environmental law or health law. Existing telecom guidelines focus mainly on technical compliance rather than on broader public health implications.⁴

This paper seeks to address this lacuna by examining electrosmog pollution from the perspective of health law and the constitutional right to health. While most discussions situate electrosmog under the environmental law paradigm, the present study emphasizes that electrosmog is fundamentally a public health challenge. Its regulation, therefore, requires statutory recognition within the frameworks of health law and environmental protection simultaneously.

The objective of this paper is threefold:

1. To analyse the conceptual, scientific, and public health dimensions of electrosmog pollution.
2. To examine the existing legal framework in India and identify regulatory gaps.
3. To propose legislative reforms and policy measures for statutory recognition of electrosmog pollution as a public health hazard.

By situating electrosmog within the broader ambit of the constitutional right to health, this paper argues that statutory regulation is not only a policy necessity but also a constitutional mandate.

Electrosmog: Conceptual and Scientific Dimensions:

The term “Electrosmog” consists of two words Electro and Smog. Electro is the short word for electronic, while the word smog refers to smoke or fog. Therefore electrosmog is a type of pollution in the form of electricity and consists of invisible electromagnetic radiation that stems from electrically charged objects and wireless technology, which is basically all man-made.⁵ The alarming part is that it can cause serious negative and degrading effects that may not appear until decades later, and most people don’t even know the threat exists. Electrosmog influence is not new; even the sun and earth emit their own electromagnetic field, both of which support life.⁶

² Ibid.

³ IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, *Non-Ionizing Radiation, Part 2: Radiofrequency Electromagnetic Fields*, (2011).

⁴ Supra Note-1.

⁵ Ibid.

⁶ Available at <https://beatemf.com/what-is-electrosmog> (Last visited on 01.09.2025 at 8 p.m).

According to the **Encyclopedia** electrosmog is the combined electromagnetic radiation in the atmosphere.⁷ According to **Macmillan Dictionary** Electrosmog is electromagnetic radiation from computers and mobile phones that some people think is harmful to health.⁸ Electrosmog is a colloquial term used to describe the aggregate presence of man-made electromagnetic radiation (EMR) in the environment. Unlike conventional pollutants, it is invisible, odourless, and intangible, yet capable of producing physiological and ecological disruptions.

Electrosmog, also referred to as electromagnetic pollution, denotes the excessive and uncontrolled presence of electromagnetic fields (EMFs) in the environment. EMFs can be broadly categorized into two types: ionizing radiation (such as X-rays and gamma rays) and non-ionizing radiation (such as radio waves, microwaves, and extremely low-frequency fields). Electrosmog primarily consists of non-ionizing radiation, which, although less energetic than ionizing radiation, has been shown to cause biological effects under prolonged or high-intensity exposure.⁹

Sources of Electrosmog:

- **Mobile Towers:** Base Transceiver Stations (BTS) continuously emit radiofrequency radiation to maintain communication signals. The proliferation of towers in urban neighbourhoods has dramatically increased exposure levels.
- **Wi-Fi Routers and Hotspots:** The demand for constant connectivity has led to Wi-Fi routers being placed in homes, schools, offices, and public spaces, adding another layer of exposure.¹⁰
- **Electrical Power Lines:** High-voltage transmission lines and transformers generate extremely low-frequency (ELF) fields.
- **Personal Devices:** Mobile phones, laptops, tablets, and wearable gadgets emit EMR, often in close contact with the human body.
- **5G Technology:** With its reliance on higher frequency bands (millimetre waves), the rollout of 5G networks is expected to significantly intensify exposure, raising concerns globally.¹¹

Electrosmog is generally categorized into two frequency ranges:

1. Extremely Low Frequency (ELF) radiation – from power lines and household electricity (50–60 Hz).
2. Radiofrequency (RF) and Microwave radiation – from wireless communication devices (30 kHz–300 GHz).

Although non-ionizing (unlike X-rays or gamma rays), prolonged and cumulative exposure is under increasing scientific scrutiny.¹²

Health Effects of Electrosmog:

Scientific research presents mixed results, but there is a growing body of evidence pointing to potential health impacts:

- **Neurological Effects:** EMR exposure has been linked to sleep disturbances, memory problems, anxiety, and depression.¹³

⁷ Available at <https://encyclopedia2.thefreedictionary.com/electrosmog> (Last visited on 01.09.2025 at 4 p.m).

⁸ Available at <https://www.macmillandictionary.com/dictionary/british/electrosmog> (Last visited on 01.09.2025 at 4.10 p.m).

⁹ Supra Note-1.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

- **Physiological Effects:** Studies have suggested increased oxidative stress, cardiovascular irregularities, and hormonal imbalances.¹⁴
- **Carcinogenic Risks:** The IARC classification of EMFs as “possibly carcinogenic” highlights the potential risk of cancers, particularly brain tumours like glioma.¹⁵
- **Electro hypersensitivity (EHS):** Although not officially recognized as a medical condition, some individuals report headaches, fatigue, and skin irritations when exposed to EMF environments.

The invisibility and uncertainty surrounding electrosmog make it a classic case for applying the precautionary principle in law and policy. Waiting for conclusive evidence may result in irreversible health consequences.

Electrosmog as a Public Health Challenge:

Unlike traditional pollutants, electrosmog operates silently and ubiquitously. It is not confined to industrial zones or urban centres but extends into homes, schools, and workplaces. This pervasive exposure transforms electrosmog from an environmental nuisance into a public health challenge of the digital age.¹⁶

Emerging Health Risks:

- **Sleep Disorders and Cognitive Impairment:** EMR is believed to interfere with melatonin production and brainwave activity, leading to poor sleep quality and reduced concentration.
- **Reproductive Health Concerns:** Some studies link EMR exposure with reduced sperm quality and fertility problems.¹⁷
- **Children and Adolescents:** As early and prolonged users of mobile technology, children face higher lifetime exposure, making them a particularly vulnerable group.
- **Occupational Risks:** Workers in telecom, broadcasting, and IT industries are regularly exposed to higher EMR levels.¹⁸

In India Public interest litigations (PILs) have been filed in states like Rajasthan and Kerala regarding the harmful effects of mobile towers. However, judicial responses remain cautious, often deferring to technical guidelines of the Department of Telecommunications. Sweden officially recognizes “electro hypersensitivity” as a functional impairment, entitling individuals to certain protections. In Italy, courts have awarded compensation to workers who developed tumours linked to prolonged mobile phone use.¹⁹ Despite these concerns, awareness about electrosmog in India remains low. Unlike air or water pollution, where sensory perception creates public awareness, electrosmog’s invisibility hinders public mobilization. The absence of statutory recognition further reinforces this neglect.

¹³ Belyaev, I., et al., “Biological Effects from Chronic Exposure to Electromagnetic Fields”, Bioelectromagnetics (2016).

¹⁴ Yakymenko, I., et al., “Oxidative Mechanisms of Biological Activity of Low-Intensity RF Radiation”, Electromagnetic Biology and Medicine (2016).

¹⁵ Hardell, L., Carlberg, M., “Mobile Phone Use and Brain Tumour Risk”, Pathophysiology (2015).

¹⁶ Supra Note-1.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

Legal Framework in India:

India's legal system provides a robust framework for environmental protection, yet it does not explicitly recognize electrosmog as a pollutant. India's environmental governance of pollution is structured around distinct statutes and institutions that evolved to address tangible, material pollution—air, water, and noise. Electromagnetic radiation (EMR), however, sits at the intersection of several administrative domains: telecommunications (technical licensing and spectrum management), environmental protection (health and ecosystem impacts), and public health. This institutional fragmentation produces three interrelated problems:

1. **Statutory omission:** Key environmental statutes do not categorically include EMR within their definitions of pollutant;
2. **Administrative displacement:** EMR regulation is treated primarily as a telecommunications/technical matter (Department of Telecommunications (DoT)²⁰, Telecom Engineering Centre), not an environmental one (Ministry of Environment, Forest and Climate Change, Government of India hereinafter referred to as MoEFCC, Central Pollution Control Board/State Pollution Control Boards);
3. **Enforcement gaps:** Where administrative guidelines exist, they lack the force, procedural safeguards, and remedies that statutory environmental law provides.²¹

These problems mean that EMR is often governed by voluntary or administrative norms rather than enforceable environmental standards—with consequences for monitoring, public participation, and legal accountability.

Environmental Laws:

- **Environment (Protection) Act, 1986:** The *Environment (Protection) Act, 1986*²² (EPA) is India's umbrella statute for environmental protection. Section 2(b) of the EPA defines an "environmental pollutant" as "any solid, liquid or gaseous substance." This textual formulation narrowly confines EPA's coverage to material substances, thereby excluding energy-based or non-material intrusions such as electromagnetic radiation.

Consequences of the omission:

- **No statutory rule-making power for EMR** under the EPA: Although Section 3 of the EPA empowers the Central Government to make rules for environmental protection; the absence of EMR in the definition undercuts a straightforward statutory path for the MoEFCC to notify binding EMR exposure standards, monitoring protocols, and zone classifications under the EPA framework.²³
- **Absence of EIA/legal clearance linkage:** Project-level environmental impact assessment (EIA) requirements under the EPA (and associated EIA Notification) traditionally focus on air, water, and biodiversity impacts. Most telecom infrastructure deployments (cell sites, small cells) routinely escape the EIA process because EMR is not a recognized environmental parameter in the EIA framework. Consequently, tower siting, cumulative exposure assessment, and health risk appraisals are not integrated into project approvals.

²⁰ Department of Telecommunication., Government of India, Guidelines for Limiting Exposure to Radio Frequency Fields (Base Station Emissions), Notification (2012).

²¹ Ibid.

²² Environment (Protection) Act, 1986, Section- 2(b) (definition of "environmental pollutant").

²³ Ibid.

- **Limited remedies and penalties:** Environmental statutes provide specific enforcement tools—show-cause notices, closure orders, environmental compensation under the polluter pays doctrine—that are not readily available where EMR is treated as an administrative technicality.²⁴

In short, without textual inclusion of EMR within the EPA, environmental governance of electrosmog lacks a clear statutory anchor.

- **Air (Prevention and Control of Pollution) Act, 1981:** The *Air Act, 1981*²⁵ defines “air pollutant” similarly in terms of solid, liquid, or gaseous substances released into the atmosphere. Electromagnetic radiation, an energy phenomenon, does not fit within that definition. This conceptual misfit yields practical limitations:
- **Central Pollution Control Board/State Pollution Control Boards jurisdictional uncertainty:** Pollution Control Boards, constituted under the Air Act, have the institutional capacity (monitoring networks, enforcement experience) to regulate diffuse environmental hazards.²⁶ Yet their mandate to measure and regulate EMR is legally ambiguous. This ambiguity weakens the Central Pollution Control Board/State Pollution Control Boards’ ability to issue standards, conduct inspections for EMR compliance, and take remedial action against non-complying infrastructure.
- **Absence of ambient EMR standards in environmental monitoring programs:** State and national ambient air quality monitoring frameworks do not include electromagnetic field (EMF) measurements as a routine parameter; hence, EMR remains unmonitored at scale from an environment protection perspective.²⁷

Thus, relying on the Air Act to regulate electrosmog without textual modification results in institutional underutilization and regulatory gaps.

- **Noise Pollution (Regulation and Control) Rules, 2000:** The *Noise Rules, 2000*²⁸ recognize “noise” as an environmental pollutant and establish zone-wise permissible noise levels, enforcement mechanisms, and penalties. The Rules illustrate how intangible, sensory intrusions (sound) can be regulated through zoning, standards, and enforcement. However, the Rules stop short of embracing electromagnetic noise or EMR:
- **No parallel zoning for EMR:** While noise rules prescribe limits for residential, commercial, industrial, and silent zones, there is no statutory provision for EMR limits tied to such zones. Schools, hospitals, and residential complexes therefore lack statutory protection from high EMR exposures akin to noise protection.
- **No inspection or monitoring regime:** The Noise Rules empower municipal authorities and pollution control agencies to measure sound levels, investigate complaints, and impose penalties. No equivalent statutory regime exists for EMR monitoring and redress.²⁹

The mismatch between the regulatory potential demonstrated by the Noise Rules and the statutory silence on EMR represents a missed opportunity for a ready regulatory model.

²⁴ Ibid.

²⁵ Air (Prevention and Control of Pollution) Act, 1981, § 2(a) (definition of “air pollutant”).

²⁶ Ibid.

²⁷ Ibid.

²⁸ Noise Pollution (Regulation and Control) Rules, 2000.

²⁹ Ibid.

Telecommunication Guidelines:

Recognizing the technical dimension of EMR, the DoT and allied technical bodies have issued exposure guidelines (often based on or referencing ICNIRP/WHO recommendations) and tower siting advisories. While these administrative tools are important, they are not a substitute for statutory regulation:

- **Non-statutory status:** DoT guidelines have administrative effect for licensees but do not create environmental causes of action. Affected citizens seeking environmental relief (closure, remediation, environmental compensation) cannot rely on DoT guidelines as primary statutory law in environmental litigation.³⁰
- **Limited remedy architecture:** Administrative non-compliance typically triggers license-related proceedings (which may prioritize continuity of telecom services) rather than environmental remediation, health investigations, or compensation mechanisms accessible under environmental statutes.
- **Spectrum of responsibility is blurred:** The DoT's goal is to facilitate telecommunication services; environmental protection is not its core mandate. This creates an institutional conflict of interest where deployment priorities may overshadow precautionary environmental safeguards.³¹

Consequently, placing EMR governance solely within the telecom administrative regime produces regulatory myopia.

The Department of Telecommunications (DoT) has issued radiation exposure limits for mobile towers, largely based on International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines. India has adopted stricter norms (1/10th of ICNIRP limits), but these are guidelines, not statutory provisions, and focus narrowly on telecom infrastructure without addressing broader public health concerns.³²

Regulatory Gaps:

Even where courts or administrative authorities have entertained petitions about mobile tower siting and EMR concerns, recurring practical gaps persist:

- **Evidentiary challenges:** EMR exposure assessment requires technical measurements (field strength, frequency, cumulative exposure). Courts often receive contested technical reports or lack consistent baseline monitoring data to make definitive factual findings.
- **Absence of standardized monitoring networks:** Unlike ambient air quality indices or water pollution surveillance, there is no nationwide EMR monitoring network under Central Pollution Control Board/State Pollution Control Boards that provides transparent public data.³³
- **Weak public participation and disclosure:** Environmental law emphasizes public participation (EIA public hearings, disclosures). Telecom deployments typically lack similar robust participatory processes concerning EMR impact, site selection, and cumulative exposure assessment.
- **Fragmented remedies:** A citizen aggrieved by EMR exposure faces multiple, disjointed forums—consumer redressal for telecom service, administrative appeals within DoT licensing, and Public

³⁰ Ibid.

³¹ Ibid.

³² Supra Note -1.

³³ Ibid.

Interest Litigation in courts. None provides a streamlined environmental remedy with standardized scientific protocols.³⁴

These enforcement gaps diminish accountability and leave communities exposed to inconsistent protection.

International Legal and Policy Approaches:

Electrosmog is a global challenge. Many countries have recognized its potential public health and ecological impacts and have incorporated regulatory frameworks that go beyond administrative technical guidelines. Comparative analysis provides insight into effective statutory approaches, precautionary standards, and liability regimes that India could emulate.

WHO and IARC:

The WHO has acknowledged potential risks of EMR exposure and recommended precautionary approaches. The IARC classification of EMR as “possibly carcinogenic” underscores the need for regulation.

European Union:

The European Union adopts a precautionary and harmonized regulatory approach to EMR:

- **Directive and Recommendations:** The EU has established exposure limits for electromagnetic fields via the Council Recommendation 1999/519/EC. Limits are designed to protect both workers and the general population.
- **Precautionary Principle:** Member states are encouraged to adopt stricter standards, especially for vulnerable populations such as children.
- **Implementation:** Several EU states, including France, Belgium, and Italy, have **national legislation or binding codes** for EMR exposure in schools, hospitals, and residential zones.³⁵

United States:

- **FCC Guidelines:** The Federal Communications Commission (FCC) prescribes EMR exposure limits based primarily on thermal effects, derived from ICNIRP recommendations.³⁶
- **Regulatory Gap:** Enforcement is largely license-based; EMR is not categorized as an environmental pollutant under federal environmental statutes.
- **Pending Re-evaluation:** On-going debates about non-thermal biological effects highlight the need for precautionary measures.³⁷

Italy and Switzerland:

- **Italy:** Imposes distance-based restrictions for cell towers near schools and hospitals. Regional regulations often enforce even stricter EMR thresholds than national ones.³⁸

³⁴ Ibid.

³⁵ European Council Recommendation 1999/519/EC on EMF exposure.

³⁶ FCC Guidelines on Radiofrequency Exposure (OET Bulletin 65).

³⁷ Ibid.

³⁸ Italian Ministry of Environment, EMR guidelines.

- **Switzerland:** Sets exposure limits far below ICNIRP recommendations and mandates public disclosure of EMR measurements in residential areas.³⁹
- **Monitoring and Enforcement:** Both countries employ national and regional agencies to conduct regular EMR monitoring and enforce penalties for non-compliance.

France:

France has adopted some of the most rigorous EMR regulations globally:

- **Wi-Fi Ban in Nurseries:** Law No. 2015-136 prohibits the use of Wi-Fi in nursery schools and restricts its use in primary schools.
- **Disclosure Requirement:** Operators must inform the public about EMR levels near dwellings and workplaces.
- **Zoning and Distance Restrictions:** Cell towers must respect minimum distance guidelines from schools and hospitals.

France exemplifies the integration of public health, transparency, and precautionary regulation in national law.⁴⁰

Belgium:

Belgium imposes strict measures, particularly for children and schools:

- **Children's Mobile Phone Ban:** Mobile phones designed for children under seven are prohibited.
- **Exposure Limits:** Belgian exposure thresholds are more conservative than ICNIRP limits, reflecting a precautionary approach.
- **Municipal Oversight:** Local authorities are empowered to manage tower siting and conduct exposure monitoring.⁴¹

Sweden:

Sweden recognizes electro hypersensitivity as a functional impairment, offering protections to individuals.

Japan and South Korea:

These countries have integrated EMR exposure norms into their public health frameworks, emphasizing monitoring and research. Japan implements strict exposure thresholds and mandates comprehensive EMR measurement before new infrastructure is deployed near schools and residential zones.⁴² South Korea incorporates EMR limits into local zoning codes and environmental impact assessments for tower deployments.⁴³

Electrosmog regulation requires not just technical compliance but integration into health law and environmental protection frameworks. International experience demonstrates that statutory recognition, precautionary exposure limits, zoning rules, and public disclosure are effective instruments to manage

³⁹ Swiss Federal Office of Environment, EMF exposure standards.

⁴⁰ French Law No. 2015-136 (prohibiting Wi-Fi in nurseries).

⁴¹ Belgian Royal Decree on EMR exposure and children's mobile devices.

⁴² Ministry of Internal Affairs and Communications, Japan, EMR regulations.

⁴³ Korea Communications Commission, EMR zoning and monitoring standards.

electrosmog. India can learn from these models to formulate a comprehensive legislative and regulatory framework, filling the current legal vacuum while ensuring alignment with constitutional mandates (Article 21, 48A, 51A(g)) and environmental principles (precautionary, polluter pays, public trust).

Electrosmog and the Right to Health in India:

The Indian Constitution does not explicitly mention the right to health, but the Supreme Court has consistently interpreted Article 21 (Right to Life) of the Constitution of India as encompassing the right to live with human dignity, which includes the right to health. In *Francis Coralie Mullin v. Administrator, Union Territory of Delhi*,⁴⁴ the Supreme Court emphasized that the right to life includes the right to live with human dignity and all that goes along with it. Building upon this interpretation, environmental jurisprudence has brought air, water, and ecological protection under Article 21.

The right to life enshrined in Article 21 of the Constitution has been expansively interpreted by the Supreme Court to encompass the right to health and a pollution-free environment. In *Consumer Education and Research Centre v. Union of India*, the Court declared that “the right to health and medical care is a fundamental right under Article 21” and imposed a positive obligation upon the State to ensure healthy working and living conditions for its citizens.⁴⁵ Similarly, in *Subhash Kumar v. State of Bihar*, the Court recognized that “the right to life includes the right to enjoy pollution-free water and air for full enjoyment of life.”⁴⁶

In *Vellore Citizens’ Welfare Forum v. Union of India*, the Supreme Court held that “environmental measures—by the State Government and statutory authorities—must anticipate, prevent, and attack the causes of environmental degradation.”⁴⁷ Applying this reasoning, it follows that India’s regulatory framework should anticipate and mitigate electrosmog-related risks before they manifest as public health crises.

In *Municipal Corporation of Greater Mumbai v. Reliance Energy Ltd.*, the Bombay High Court acknowledged public concerns about mobile tower radiation but deferred to government guidelines, citing lack of scientific certainty.⁴⁸ This demonstrates judicial restraint in the absence of legislative clarity, underscoring the need for statutory intervention.

Beside Article 21, the Directive Principles of State Policy (herein after referred to as DPSPs) and Fundamental Duties create a constitutional framework for environmental protection:

- **Article 48A** directs the State to “protect and improve the environment and to safeguard the forests and wildlife of the country.”
- **Article 51A(g)** imposes a duty on every citizen “to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.”

Moreover, the Directive Principles of State Policy reinforce this constitutional protection. Article 47 obligates the State to improve public health, and Article 48A directs it to protect and improve the environment. When read together with Article 21, these provisions establish an integrated constitutional framework for safeguarding health from all environmental hazards—visible or invisible.

⁴⁴ *Francis Coralie Mullin v. Administrator, Union Territory of Delhi*, (1981) 1 SCC 608.

⁴⁵ *Consumer Educ. & Research Ctr. v. Union of India*, (1995) 3 SCC 42.

⁴⁶ *Subhash Kumar v. State of Bihar*, (1991) 1 SCC 598 (India).

⁴⁷ *Vellore Citizens’ Welfare Forum v. Union of India*, (1996) 5 SCC 647.

⁴⁸ *Municipal Corp. of Greater Mumbai v. Reliance Energy Ltd.*, 2014 SCC OnLine Bom 940.

Though not enforceable by courts, DPSPs and Fundamental Duties guide statutory interpretation and policymaking. Courts have frequently harmonized them with Article 21 to impose obligations on the State. In *Sachidanand Pandey v. State of West Bengal*,⁴⁹ the Court declared that whenever environmental issues are brought before the judiciary, Articles 48A and 51A (g) must be kept in mind. Recognizing electrosmog as pollution would align with these constitutional directives by extending environmental protection to the digital age.

Beside the Constitution Indian environmental jurisprudence rests on key principles articulated through judicial pronouncements:

(a) Precautionary Principle:

In *Vellore Citizens Welfare Forum v. Union of India*,⁵⁰ the Supreme Court identified the precautionary principle as part of the law of the land. The Court held that where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Electrosmog represents precisely such a case while scientific consensus on its long-term effects is evolving, precautionary regulation is justified to safeguard public health.

(b) Polluter Pays Principle:

Also in *Vellore Citizens*,⁵¹ the Court emphasized that the responsibility for remedying environmental harm lies with the polluter. This principle was reinforced in *Indian Council for Enviro-Legal Action v. Union of India*,⁵² where industries were directed to bear the costs of pollution they caused. Applied to electrosmog, this principle mandates that telecom companies and infrastructure providers bear liability for EMR emissions that exceed safe limits.

(c) Public Trust Doctrine:

In *MC Mehta v. Kamal Nath*,⁵³ the Court held that the State holds natural resources in trust for the public and cannot abdicate its duty to protect them. The electromagnetic spectrum itself is a public resource. Its use for commercial purposes must therefore be regulated to ensure it does not harm public health or the environment.

Intergenerational Equity:

The principle of intergenerational equity, articulated in *State of Himachal Pradesh v. Ganesh Wood Products*,⁵⁴ requires that the present generation use natural resources in a manner that preserves them for future generations. Electrosmog is not a conventional depletion of resources, but its long-term ecological effects—such as disruption of biodiversity and pollination—can undermine environmental stability for future generations. By recognizing EMR as pollution, statutory law can ensure that present-day technological benefits do not compromise the health and ecological security of tomorrow.⁵⁵

India is a signatory to several international environmental instruments, including:

- **The Stockholm Declaration (1972)**, which recognizes the fundamental right to a healthy environment;

⁴⁹ *Sachidanand Pandey v. State of West Bengal*, (1987) 2 SCC 295.

⁵⁰ *Vellore Citizens Welfare Forum v. Union of India*, (1996) 5 SCC 647.

⁵¹ *Ibid.*

⁵² *Indian Council for Enviro-Legal Action v. Union of India*, (1996) 3 SCC 212.

⁵³ *MC Mehta v. Kamal Nath*, (1997) 1 SCC 388.

⁵⁴ *State of Himachal Pradesh v. Ganesh Wood Products*, (1995) 6 SCC 363.

⁵⁵ *Ibid.*

- **The Rio Declaration on Environment and Development (1992)**, which incorporates the precautionary principle;
- **Agenda 21** and the **Sustainable Development Goals (SDGs)**, which emphasize balancing development with environmental protection.

Though not binding as domestic law, these commitments shape India's constitutional environmentalism. Incorporating electrosmog into statutory law would demonstrate India's compliance with its international obligations to safeguard human health and the environment.⁵⁶

While the judiciary has actively protected against air, water, and noise pollution, no judicial pronouncement or legislative measure has yet extended this protection to electromagnetic pollution. Given the increasing ubiquity of EMR in daily life, its potential biological and psychological impacts require urgent legal acknowledgment within this constitutional framework.⁵⁷

The constitutional mandate for recognizing electrosmog as pollution rests on four interlinked pillars:

- **Article 21:** Right to life includes the right to live in a safe, healthy environment, free from harmful EMR;
- **Directive Principles & Fundamental Duties:** Imposing both State and citizen responsibilities toward environmental protection;
- **Judicially Recognized Principles:** Precautionary principle, polluter pays principle, and public trust doctrine;
- **Intergenerational Equity & International Commitments:** Ensuring sustainable development for future generations.

Together, these provide a robust constitutional foundation for amending environmental statutes to include electromagnetic radiation within the definition of pollutants.

Electrosmog directly affects public health and quality of life. The state's failure to regulate EMR exposure can be interpreted as a violation of its constitutional duty under Article 21. Thus, statutory recognition of electrosmog as a pollutant is not only desirable but constitutionally mandated.⁵⁸

Legislative Imperatives and Policy Recommendations:

To address electrosmog pollution effectively, India must adopt a multi-sectoral legislative approach.

Statutory Amendments:

- Amend the **Environment (Protection) Act, 1986** to include electromagnetic radiation within the definition of "pollutant."
- Incorporate EMR-specific provisions in public health legislation, mandating permissible exposure limits.

Institutional Coordination:

- Establish joint responsibility between the Ministry of Environment, Forest and Climate Change (MoEFCC), Ministry of Health and Family Welfare (MoHFW), and Department of Telecommunications (DoT).
- Empower Pollution Control Boards to monitor EMR emissions.

⁵⁶ Supra Note -1.

⁵⁷ Ibid.

⁵⁸ Ibid.

Precautionary Principle:

- Adopt the EU-style precautionary principle, prioritizing public health over technological uncertainty.
- Encourage technological innovation for safer devices and infrastructure.

Monitoring and Accountability:

- Create public databases of EMR exposure levels in cities.
- Mandate liability provisions for telecom companies exceeding permissible limits.
- Ensure public awareness campaigns to educate citizens about risks and safe usage.

Policy and Administrative Recommendations:

■ Zoning Regulations for Sensitive Areas:

- Schools, hospitals, nurseries, and parks should have stricter EMR limits (e.g., 50% of general permissible levels).
- Minimum distance norms for tower placement near sensitive institutions.

■ Public Awareness Campaigns:

- Government-led campaigns to educate citizens about safe EMR practices, risks, and reporting mechanisms.
- Guidelines for home and workplace EMR management, including safe Wi-Fi and mobile device use.

■ Research and Scientific Assessment:

- Fund longitudinal studies on health and ecological impacts of EMR in India.
- Collaborate with universities and research institutes for continuous scientific monitoring and policy updates.

International Alignment:

■ Adopt Best Practices from EU, France, Belgium, and Switzerland:

- Precautionary exposure limits, public disclosure, and sensitive zone protection.
- National standards harmonized with international scientific consensus.

■ Technology-Neutral and Future-Ready Legislation:

- Legislation must be flexible enough to accommodate 5G densification, IoT proliferation, and future wireless innovations without frequent amendments.

Judicial and Enforcement Recommendations:

■ Empower Courts for Oversight

- Recognize PILs and citizen petitions as a legitimate tool for EMR enforcement.
- Courts can mandate monitoring, compliance reporting, and corrective action.

■ Integrated Enforcement Mechanism

- Ensure cooperation between judiciary and regulatory agencies (NERA, SPCBs, DoT) for robust enforcement.
- Judicial directives should supplement statutory penalties and remediation.

Statutory recognition of electrosmog as a pollutant is both necessary and feasible. By amending the Environment (Protection) Act, Air Act, and Noise Rules, India can create a robust legal framework that protects public health and the environment while allowing responsible technological deployment. Clear

liability provisions, inter-agency coordination, and public disclosure ensure accountability, precaution, and sustainability—fulfilling constitutional, scientific, and international obligations.

Conclusion:

Electrosmog pollution represents a paradigm shift in environmental and public health discourse. Unlike visible pollutants, it is invisible, intangible, and omnipresent. Yet, its potential impact on human health is profound. The absence of statutory recognition in India reflects a dangerous regulatory vacuum, especially in a country experiencing rapid digital expansion. Electrosmog is no longer a peripheral or theoretical concern; it is a real and measurable environmental hazard. Recognizing EMR as a statutory pollutant is not merely a regulatory necessity—it is a constitutional, scientific, and public health imperative. By integrating legislative reform, regulatory monitoring, judicial oversight, public participation, and international best practices, India can develop a comprehensive, enforceable, and future-ready framework to safeguard its citizens and ecosystems from the invisible yet potent threat of electrosmog.

By linking electrosmog pollution to the constitutional right to health, this paper emphasizes that regulation is not a matter of choice but of constitutional obligation. The state must act proactively to protect citizens from emerging health hazards. Statutory recognition, legislative amendments, inter-agency coordination, and public awareness are essential components of this effort.

India stands at a crossroads: it can either wait for conclusive evidence while health risks accumulate, or it can adopt a precautionary and preventive approach that balances technological progress with public health protection. Recognizing electrosmog as a pollutant under health and environmental law is, therefore, a legislative imperative for India in the digital age.