

Electromagnetic Pollution : A New Challenge before Law Making Authorities

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ABSTRACT

Electromagnetic pollution, caused by increasing human activity, in the area of utilization of electrical and electromagnetic energy, is slowly increasing without much appreciation of the consequential implications. While everyone is aware of the benefits derived from the high-tech electrical and electronic devices and systems, only few users are aware of the real or unsuspected dangers from them. In this paper, it is intended to give a snap shot overview of this newer version of pollution by electromagnetic radiations. This paper is an attempt to show the necessity of affective law provisions to prevent and control electro magnetic pollution and the implementation of the doctrine of sustainable development.

1. Introduction

Industrial pollution is generally referred to the undesirable outcome when factories (or other industrial plants) emits harmful by-products and waste into the environment such as emissions to air or water bodies (water pollution), deposition on landfills etc (land pollution) or emission of toxic chemicals into the atmosphere (air pollution). Industrial pollution is generally referred to the undesirable outcome when factories (or other industrial plants) emits harmful by-products and waste into the environment such as emissions to air or water bodies (water pollution), deposition on landfills etc (land pollution) or emission of toxic chemicals into the atmosphere (air pollution). Unprecedented human exposure to radiofrequency electromagnetic radiation from conception until death has been occurring in the past two decades. Evidence of its effects on the CNS, including altered neurodevelopment and increased risk of some neurodegenerative diseases, is a major concern considering the steady increase in their incidence. Evidence exists for an association between neurodevelopmental or behavioural disorders in children and exposure to wireless devices, and experimental evidence, shows that prenatal exposure could cause structural and functional changes in the brain associated with ADHD-like behaviour. These findings deserve urgent attention. Evidence also exists of the effects of radiofrequency electromagnetic radiation on flora and fauna. For example, the reported global reduction in bees and other insects is plausibly linked to the increased radiofrequency electromagnetic radiation in the environment.

Exposure to electromagnetic fields is not a new phenomenon. However, during the 20th century, environmental exposure to man-made electromagnetic fields has been steadily increasing as growing electricity demand, ever-advancing technologies and changes in social behaviour have created more and more artificial sources. Everyone is exposed to a complex mix of weak electric and magnetic fields, both at home and at work, from the generation and transmission of electricity, domestic appliances and industrial equipment, to telecommunications and broadcasting.

2. Need of the study

The right to live in a clean and healthy environment is not a recent invention of the higher judiciary in India. The right has been recognised by the legal system and the judiciary in particular for over a century or so. The only difference in the enjoyment of the right to live in a clean and healthy environment today is that it has attained the status of a fundamental right the violation of which, the Constitution of India will not permit. The judiciary has managed to increase the ambit of Article 21 of the constitution of India, through various judicial pronouncements, to include the Right to a healthy and clean environment to be a fundamental right under the right to life. Judicial Pronouncements on Right to clean and healthy environment as a fundamental right: Article 21 of the constitution of India provides for the right to life and personal liberty, it states "No person shall be deprived of his life or personal liberty except according to procedure established by law." This article imposes a duty on the state to protect the life and liberty of the people. The concept of the right to life has been broadened through the judicial pronouncements. While resolving cases relating to the environment, the judiciary considered the right to clean or the good environment as fundamental to life and upheld as a fundamental right.

Subhash Kumar v. State of Bihar : In the instant case, the Court observed that 'right to life guaranteed by article 21 includes the right of enjoyment of pollution-free water and air for full enjoyment of life.' Through this case, the Court recognised the right to a wholesome environment as part of the fundamental right to life. This case also indicated that the municipalities and a large number of other concerned governmental agencies could no longer rest content with unimplemented measures for the abatement and prevention of pollution. They may be compelled to take positive measures to improve the environment.

M.C. Mehta vs. Union of India (Vehicular Pollution Case) A matter regarding the vehicular pollution in Delhi city, it was held to be the duty of the Government to see that the air did not become contaminated due to vehicular pollution. The Apex court again confirming the right to a healthy environment as a basic human right and stated that the right to clean air also

stemmed from Art 21 which referred to Right to life. This case has served to be a major landmark because of which lead-free petrol supply was introduced in Delhi. There was a complete phasing out of old commercial vehicles more than 5 years old as directed by the courts.

The Constitution of India originally adopted, did not contain any direct and specific provision regarding the protection of natural environment. Perhaps, the framers of the Indian Constitution, at that time, considered it as a negligible issue. However, in fact, it contained only a few Directives to the State on some aspects relating to public health, agriculture and animal husbandry. These Directives were and are still not judicially enforceable. Some of the Directive Principles of State Policy showed a slight inclination towards environmental protection i.e. Art 39(b), Art 47, Art 48 and Art 49 individually and collectively impose a duty on the State to create conditions to improve the general health level in the country and to protect and improve the natural environment. Later through a constitutional amendment, two specific provisions i.e. Article 48-A and Article 51-A (g), has been added which imposes the duty on the state as well as the citizens of the state to protect and conserve the environment.

3. Current scenario: mobile towers in residential areas

While people are rather happy with better network accessibility brought by increase in the number of mobile phone towers in their areas, the National Rights Commission (NHRC) is concerned about the harmful effects of radiation emitted from these towers in residential areas. Notices have been issued to the union ministry of communications and information technology and health ministry. Development in the telecommunication sector has never been so hiked up as now. New and better services are being introduced with newer networks that require more towers. Development should not come in the way of healthcare and government needs to ensure that strategies are adapted to take care of these aspects.

The harmful effect of having mobile towers in residential areas is highly debated. Some of the theories believe that there is no harm in having mobile towers in residential areas while the others cite the list of harms that could come from them. While people are rather happy with better network accessibility brought by increase in the number of mobile phone towers in their areas, the National Rights Commission (NHRC) is concerned about the harmful effects of radiation emitted from these towers in residential areas. Notices have been issued to the union ministry of communications and information technology and health ministry.

4. Impact of electromagnetic radiations

The harmful effect of having mobile towers in residential areas is highly debated. Some of the theories believe that there is no harm in having mobile towers in residential areas while the others cite the list of harms that could come from them. Electromagnetic radiations, If you go for expert advice, they would tell you that living within 50m of a mobile tower is like being stuck in a microwave oven for the entire day. The electromagnetic radiations are cancerous elements that are straightforward lethal for health. Take a look at all those cell phone towers on the terrace of residential buildings and you can imagine how close a call people are taking with these

perilous elements. The WHO's International Agency for Research on Cancer (IARC) reported that mobile tower radiations are carcinogenic to humans and can cause brain cancer. It has the same effects as being surrounded by DDT, chloroform, lead and petrol exhaust.

Some members of the public have attributed a diffuse collection of symptoms to low levels of exposure to electromagnetic fields at home. Reported symptoms include headaches, anxiety, suicide and depression, nausea, fatigue and loss of libido. To date, scientific evidence does not support a link between these symptoms and exposure to electromagnetic fields. At least some of these health problems may be caused by noise or other factors in the environment, or by anxiety related to the presence of new technologies. There have been occasional reports of associations between health problems and presumed exposure to electromagnetic fields, such as reports of prematurity and low birth weight in children of workers in the electronics industry, but these have not been regarded by the scientific community as being necessarily caused by the field exposures (as opposed to factors such as exposure to solvents) General eye irritation and cataracts have sometimes been reported in workers exposed to high levels of radiofrequency and microwave radiation. Despite many studies, the evidence for any effect remains highly controversial. However, it is clear that if electromagnetic fields do have an effect on cancer, then any increase in risk will be extremely small. The results to date contain many inconsistencies, but no large increases in risk have been found for any cancer in children or adults. A number of epidemiological studies suggest small increases in risk of childhood leukemia with exposure to low frequency magnetic fields in the home. Some individuals report "hypersensitivity" to electric or magnetic fields. They ask whether aches and pains, headaches, depression, lethargy, sleeping disorders, and even convulsions and epileptic seizures could be associated with electromagnetic field exposure.

5. International laws and regulations upon EM radiations

Radiation Control for Health and Safety Act of 1968 :By USA was an amendment to the Public Health Service Act mandating performance standards for electronic products susceptible of electromagnetic radiation or radiation emissions. The United States statute established provisions involving research and development programs for the studies of electromagnetic shielding, ionizing radiation, non-ionizing radiation, and exposure assessment to humans.

Model Electromagnetic Fields Human Exposure ACT by WHO : 1 The purpose of the Act is to establish limits on human exposure to Electromagnetic Fields (EMF) that will provide protection against known adverse health effects from any installation or device emitting such fields. : Restrictions on exposure to electric, magnetic, and electromagnetic fields that are based directly on established health effects. Depending upon the frequency of the field, the physical quantities used to specify these restrictions are current density (J), specific energy absorption rate (SAR), and power density (S). Only power density in air, outside the body, can be readily measured in exposed individuals.

International EMF Project: As part of its charter to protect public health and in response to public concern over health effects of EMF exposure, the World Health Organization (WHO) established the International EMF Project in 1996 to assess the scientific evidence of possible health effects of EMF in the frequency range from 0 to 300 GHz. The EMF Project encourages focused research to fill important gaps in knowledge and to facilitate the development of internationally acceptable standards limiting EMF exposure.

6. Law In India Regarding EM Radiation

WHO recommended that **'National authorities should adopt international standards to protect their citizens against adverse levels of RF fields. They should restrict access to areas where exposure limits may be exceeded.'** WHO has recommended adoption of international standards, namely International Commission for Non Ionizing Radiation Protection (ICNIRP)/ Institute of Electrical and Electronics Engineers (IEEE). The main conclusion from the WHO reviews is that EMF exposures below the limits recommended in the ICNIRP international guidelines do not appear to have any known consequence on health. Department of Telecommunication (DoT), since 2008, has been monitoring global developments and has already taken necessary steps and adopted stricter norms for safety from EMF radiation that are emitted from mobile towers and mobile handsets. Government of India has been taking due precautions and necessary actions in respect of EMF radiation emitted from mobile towers and mobile handsets by issuing various guidelines and norms taking into account the international standards/norms prescribed by International Commission on Non Ionizing Radiation Protection (ICNIRP) as recommended by World Health Organisation.

EMF safe exposure Limits from mobile towers adopted in India – As mentioned above, Government of India adopted the ICNIRP guidelines in the year 2008 for basic restriction and limiting reference levels of Electromagnetic radiation from Mobile towers and inserted the additional clause in the Access Service Licenses vide its amendment letter dated 4/11/2008. Based on the recommendations by Inter-Ministerial Committee (IMC), these norms for exposure limit for the Radio Frequency Field (Base Station Emissions) have been further made stringent and reduced to 1/10th of the existing limits prescribed by International Commission on Non Ionizing Radiation Protection (ICNIRP). Directions in this regard have been issued to the Mobile Operators on 30.12.2011. These directions have been further revised on 10.01.2013 and 26.06.2013. As per latest directions of 26.06.2013 -"Licensee shall conduct audit and provide self certificates after every two years as per procedure prescribed by Telecommunication Engineering Centre (TEC) /or any other agency authorized by Licensor from time to time for confirming to limits/levels for antennae (Base Station Emissions) for general public exposure as prescribed by Licensor from time to time."

The radiations from mobile towers have been a concern in India for some time and this concern seems to have grown in recent times with the growing network of mobile service providers. The interim order passed by the Hon'ble Supreme Court of India on 30 March, 2017 in the case of **Bhupesh Sehgal v Delhi Development Authority** to

deactivate a mobile tower as it was seen to be causing cancer has highlighted the issue.

As per the "awareness note on mobile tower radiation and its impacts on environment", as circulated by the Central Pollution Control Board¹ ("CPCB"), a mobile tower is a triangular / cone shaped metal structure which is more than nine meter in height and on which three or more antennas are fixed. Mobile Tower Antennas are the source of radiation in a mobile tower. However, a telecom infrastructure consists of electronic (active) and non-electronic infrastructure.

Electronic infrastructure includes base tower station, microwave radio equipment, switches, antennas, transceivers for signal processing and transmission. Non-electronic infrastructure includes tower, shelter, air-conditioning equipment, diesel electric generator, battery, electrical supply, technical premises. The need for protection and conservation of environment and sustainable use of natural resources is reflected in the constitutional framework of India and also in the international commitments of India. The Constitution under Part IVA (Art 51A-Fundamental Duties) casts a duty on every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures. Further, the Constitution of India under Part IV (Art 48A-Directive Principles of State Policies) stipulates that the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.

Some of the important legislations for environment protection are as follows:

- The National Green Tribunal Act, 2010
- The Air (Prevention and Control of Pollution) Act, 1981
- The Water (Prevention and Control of Pollution) Act, 1974
- The Environment Protection Act, 1986
- The Hazardous Waste Management Regulations, etc.

7. Role of judiciary

Even as experts are still debating over the existence of 'harmful radiation' from mobile towers, a Harish Chand Tiwari has succeeded in getting the Supreme Court of India in 2017 to shut down a mobile tower for causing cancer to him. Gwalior-based Harish alleged that a BSNL tower located less than 50 meters from the house he worked exposed him to radiation that further led to Hodgkin's Lymphoma. This was also the first time in the country when a mobile tower has been shut down on the ground of radiation. In two separate complaints against installation of mobile towers in residential areas, the National Green Tribunal (NGT) has directed the Delhi Pollution Control Committee and the South Delhi Municipal Corporation to look into the issues and furnish action-taken reports.

A Bench headed by NGT judicial member S.P. Wangdi said: "Considering the facts and circumstances set out in the application, we deem it appropriate to forward this complaint to the DPCC and SDMC to jointly examine the factual aspects set out in the application and thereafter, take appropriate action in accordance with law." *Shri Ashok Pawha vs Shri Pawan Kumar* on 19 September, 2018. High Court of Delhi, no mobile tower can be installed at the residential area and imposing a ban on installation of high frequency mobile phone towers within 50 metres of schools, hospitals and residential localities. "Respondents to be directed to stop the radio

frequency waves emitted from cell phone towers causing radiation in the schools, hospitals and residential localities in which the towers be not allowed to be installed in 50 metres of the places,”

8. Suggestions

Industrial pollution has adversely affected biodiversity for the last two centuries and continues to increase globally. The effect most closely correlated with loss of ecosystem services is toxification of environmental sites, whereby the organisms living in the ecosystem are damaged because of the poisonous nature of many pollutants. As many toxicants (poisonous materials) can act even with very minimal exposure, it is almost impossible and economically infeasible to remove dissolved pollution from the environment with modern technical methods. Several environment protection legislations existed even before Independence of India. However, the true thrust for putting in force a well-developed framework came only after the UN Conference on the Human Environment (Stockholm, 1972). After the Stockholm Conference, the National Council for Environmental Policy and Planning was set up in 1972 within the Department of Science and Technology to establish a regulatory body to look after the environment-related issues. This Council later evolved into a full-fledged Ministry of Environment and Forests.

9. Effective framework

It is the need of the hour to make a legal framework regarding to control electromagnetic radiations and sources, which may effect human and other living creature on earth. prevention is better than cure, so it is duty of law making authorities to make effective laws as per the modern requirement.

10. The implementation of the doctrine of sustainable development.

The well recognized principle of sustainable development for the protection and improvement of environment has been unanimously accepted by the world countries as a strategy that caters to the needs of the present without depriving the future generations of their right to available natural resources. It has been rightly said that sustainable development is meant to secure a balance between developmental activities for the benefits of the people and environmental protection and therefore, “it is a guarantee to the present and bequeath to the future generations.” The principle of sustainable development seeks to harmonise the conflict between development which may be industrial, economic or social, and right to healthy environment. In other words, the balance between environmental protection and developmental activities could only be maintained by strictly adhering to the principle of sustainable development. Environmental protection is an integral part of sustainable development. Most of the nations have enacted environmental protection laws to ensure sustainable development within their territories. In order to reinforce sustainable development, an effective environmental

protection mechanism is needed. It is generally seen that inadequate protection of environment or its degradation affects the poorest sections of the society most as they draw a large part of their livelihood from unmarked environmental resources such as forests, water from hand pumps, air polluted and noisy slum dwellings etc. The problem of environmental protection generally emanates from water resources, forests, agriculture, industry, energy and power etc., therefore, policy decisions in these sectors should be environmental oriented and well planned so as to ensure that there is no degradation in the natural environment.

11. Precautionary Principle :

The precautionary principle seeks to ensure that a substance or human activity which may cause a threat to the environment is prevented from causing harm to environment, even if there is no conclusive scientific proof of linking that particular substance or human activity to environmental damage. Thus, precautionary principle pre-supposes that onus of proof is on the industrialist to show that his action is benign, that is not harmful to environment.

The precautionary principle in the context of environmental protection is essentially about the management of scientific risk. It is a component of the concept of ecologically sustainable development and has been defined in Principle 15 of the Rio Declaration, 1992.” According to this principle, “where there is threat of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.” In other words, any human activity or behaviour which bears the harmful effect to the environment, has got to be prevented at all costs.

Conclusion

It is true that in order to improve and protect the environment from pollution sustainability must be there between environment and development. The concept of sustainable development based on the notion that natural resources should be exploited for the benefit of both present and future generation. As we know that increased industrial activity worldwide requires the use of natural resources which are depleting day by day. It is also true that the need for resource conservation, efficient use of resources and environment friendly corporate policies and behaviour has now been recognised worldwide. The country needs an Environmental policy and planning, while being globally sensitive must be based on local needs. Finally, if sustainable development has to move from mere wishful thinking and slogan-mongering into a reality, the world (developed and developing) as a whole has to move towards a new world order in which new economic and technological orders are dovetailed. Such an order has to be aimed at benefiting the poor because in the chain of sustainable development, the weakest links are poverty and inequality. Last but not least, if the principles of sustainable development are followed then definitely with the economic growth and industrial development of a country environment protection can be maintained.

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