

The Role of Cell tower Radiation as an Environmental Pollutant and the need to apply the Precautionary and ALARA Principles.



Environmental Pollution:

The terrestrial electromagnetic environment has been and is being rapidly altered by humans as a result of technological advancements. This was well recognised very early in the seventies by Dr. Robert O. Becker (twice nominated for the Nobel Prize) who said "***I have no doubt in my mind that, at the present time, the greatest polluting element in the earth's environment is the proliferation of electromagnetic fields (EMFs).***" Health Implications of Electromagnetic Fields, Mechanisms of Action, and Research Needs

<https://www.hindawi.com/journals/ab/2014/198609/>

B. Blake Levitt and Henry Lai: "**Non ionizing electromagnetic fields are among the fastest growing forms of environmental pollution.** Biological effects from exposure to electromagnetic radiation emitted by cell tower base stations and other antenna arrays.

<https://www.emf-portal.org/en/article/18763>

During the recent years the problem about the monitoring of **electromagnetic field pollution** attracts the increasing attention of both scientists and national authorities. The topic of the problem lies in the increasing interest towards the local, regional, and global aspect study and control of the **electromagnetic pollution**. The need of receiving regular and accurate information about the changes in environmental electromagnetic radiation appeared. (Monitoring of Non - ionizing Electromagnetic Fields in the Urban Zone of Tuzia City: Proceedings of the International Symposium on Innovative and Interdisciplinary Applications of Advanced Technologies. (IAT), Volume 1)

At a time when environmental health scientists tackle serious global issues such as climate change and chemical toxicants in public health, there is an urgent need to address so-called electromog. Planetary **electromagnetic pollution**: it is time to assess its impact.

[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(18\)30221-3/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30221-3/fulltext)



When combined with other agents, the adverse effects of non-ionizing EMF radiation on biological systems may be more severe:

Non-ionizing EMF radiation exposure safety standards are based primarily on stand-alone radiation exposures.

In daily living, the body is exposed to multiple external agents simultaneously, e.g., myriad non-ionizing EMF radiations, pesticides, food additives, heavy metal, legal and illegal drugs, ionizing radiation, and air pollution. The number of combinations of potential external agents is large. Each combination could potentially have synergistic or antagonistic, and beneficial or adverse, effects. Chapter 4 Modified Health Effects of Non-ionizing Electromagnetic Radiation Combined with Other Agents Reported in the Biomedical Literature Ronald N. Kostoff and Clifford G.Y. Lau

http://stip.gatech.edu/wpcontent/uploads/2017/03/371048_1_En_4_Chapter_OnlinePDF.pdf

Bioelectromagnetic research reveals clear evidence of joint actions at cell membranes of chemical cancer promoters and environmental electromagnetic fields. The union of these two disciplines has resulted in the first major new approach to tumor formation in 75 years, directing attention to dysfunctions in inward and outward streams of signals at cell membranes, rather than to damage DNA in cell nuclei, and to synergic actions of chemical pollutants and environmental

electromagnetic fields. Joint Actions of Environmental Nonionizing Electromagnetic Fields and Chemical Pollution in Cancer Promotion by W. Ross Adey* https://pdfs.semanticscholar.org/205c/f09f8f27d729be43078dfd9c334af209f014.pdf?_ga=2.44485284.1640960232.1551133958-283398986.1549226487

Humans and ecosystems are exposed to highly variable and unknown cocktail of chemicals and radiations. Although individual chemicals are typically present at low concentrations, they can interact with each other resulting in additive or potentially synergistic mixture effects. This was also observed with products obtained by radiation actions such as sunlight or electromagnetic fields that can change the effects of chemicals, such as pesticides, and metal trace elements on health. Concomitant presence of various pesticides and their transformation products adds further complexity to chemical risk assessment since chronic inflammation is a key step for cancer promotion. Degradation of a parent molecule can produce several by-products which can trigger various toxic effects with different impacts on health and environment. For instance, the cocktail of sunlight irradiated sulcotrione pesticide has a greater cytotoxicity and genotoxicity than parent molecule, sulcotrione, and questions about the impact of photochemical process on environment. Adjuvants were shown to modify the biological features of pesticides. Addition of other elements, metals or biological products, can differently enhance cell toxicity of pesticides or electromagnetic radiations suggesting a synergy in living organisms. Electromagnetic fields spreading, pesticide by-products and mixtures monitoring become greater for environmental contamination evaluations. Synergistic health effects between chemical pollutants and electromagnetic fields <https://www.degruyter.com/view/j/reveh.2015.30.issue-4/reveh-2015-0028/reveh-2015-0028.xml>

Imagine for a moment what the total sum of effects will be on a community or individuals exposed to:

-An oil refinery with a cell tower and power lines located in close proximity. Add to that the radiation levels produced by the use of personal wireless devices.

-A school and a community located in the middle of an industrial area, surrounded by very busy roads and numerous cell towers. Workers in industrial areas like these are also exposed on a daily basis - even more so if they work with industrial chemicals.

The WHO and pollution:

The WHO names air pollution and physical inactivity as two of the 5 main NCDs (of course ignoring the role of EMFs as an environmental pollutant, especially in combination with other agents). The WHO states that there are **4.2 million** deaths every year as a result of exposure to ambient (outdoor) air pollution.

Noncommunicable diseases:

Cardiovascular Diseases, Cancer, Diabetes, Mental Health Conditions, Chronic Respiratory Diseases.

According to the WHO Noncommunicable diseases kill 41 million people prematurely every year, many of them in the prime of life. (41 MILLION lives. 41 MILLION families affected). *"But we could save nearly 10 million lives by 2025"*.

The WHO: *"Let's Beat NCD's"*.

Cancer is a leading cause of death for children and adolescents around the world and approximately 300,000 children aged 0 to 19 years old are diagnosed with cancer each year.

<https://www.who.int/news-room/fact-sheets/detail/cancer-in-children>

Environmental factors, including pollutants, lifestyle factors and behaviours, can play an important role in serious, chronic pathologies with large societal and economic costs. The risk of acquiring a chronic disease is influenced by a person's genetics (G) and exposures received during life (the 'exposome', E) plus their interactions (G×E). Genetic Factors Are Not the Major Causes of Chronic Diseases.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4841510/>

We believe that until the WHO recognises the role of nEMFs in NCDs it will continue to be a losing battle.

The Precautionary Principle is applied where there is scientific evidence of potential harm, but the matter may be considered by some to be unsettled as to causation.

There is no justification for delaying action to protect exposed populations, especially if the agent has already been shown to cause adverse health effects in other exposed populations.



A South African Company



