EMF Radiation on Issues relating to Indian Administration

Republic of India is the seventh largest country in the world having the most diverse and mixed population. Wireless telephones are increasing at faster rate with 787.29 million Telephone connection and approx 0.588 million mobile base stations as on 31.12.2010. Over 18 million connections are being added every month and it is the second largest wireless network in the world after China. The overall tele-density has reached 66.17%. (Urban - 148%, Rural - 31.22%).

Reference level:

India has adopted the ICNIRP guidelines for basic restrictions and reference levels for limiting Electromagnetic fields exposure from base transceiver stations and SAR value of mobile hand-set for general public.

Public Concern over cell phone radiation:

There have been growing public concern of possible adverse health effect due to RFR radiation.

- Microwave frequencies entering into the body are causing damage to biological cells.
- Radiation beyond prescribed limit from BTS by the telecom operators may cause harm to human health and environment.
- People living within 100 m. radius of a mobile tower have been observed to be suffering from various types of deceases symptoms.
- Honey bees lose their navigational sense in high intensity electromagnetic field. Sparrows, crows, honey bees are disappearing in urban areas.
- In the areas of coconut trees, the coconut surface is becoming brown.

Measures taken by Govt.:

a) Service Providers submit self certification regarding compliance of radiation norms on EMF exposure.

b) Government conducts audit on the self certification furnished by the Service Providers.

c) Heavy penalties have been prescribed by the Govt. for non-compliance of radiation norms.
d) The mobile manufacturers have been asked to indicate the level of radiation on the product itself and to clearly bring out the potential danger of mobile phone radiation and its exposure.

e) SAR laboratory is being established for testing of SAR value of mobile handsets imported/manufactured in India.

An Inter-ministerial committee consisting of officers from Telecommunication, Medical research, Biotechnology and Environment has been constituted to examine the effect of EMF Radiation on health from base stations and mobile phones.

The report is uploaded on DoT website (http://www.dot.gov.in/miscellaneous/imc.htm) for feedback/comments from stakeholders. The feedback received is being examined.

Research Activities:

Department of Human Genetics, Guru Nanak Dev University, Amritsar has conducted number of studies in this area. In one of the study a correlation between mobile phone use (exposure to radio frequency radiations) and DNA and chromosomal damage in lymphocytes of individuals using mobile phones was observed which may have long-term consequences in terms of neoplasia and/or age-related changes (Gandhi & Anita, 2007). Another study reported (Gandhi & Singh, 2005) cytogenetic damage in tissues of some individuals using cell phones over a period of time. The data revealed increased number of micro nucleated buccal cells and cytological abnormalities in cultured lymphocytes indicating the genotoxic response from mobile phone use. As exposure to radiofrequency radiations has been reported to affect physiological, neurological, cognitive and behavioral changes and to induce, initiate and promote carcinogenesis; threat to human health has been suggested for mobile phone users (Gandhi et al. 2005).

Indian Council of Medical Research (ICMR) supported an animal study entitled ”Microwave radiations effects on reproductive systems of male rats” which was carried out at School of Environmental Sciences, Jawaharlal Nehru University, and New Delhi. The result obtained showed that the chronic exposure to Radio Frequency Radiation (RFR) imitated from cell phone causes a significant decrease in protein kinase C and total sperm count along with increase apoptosis in male rat. The study suggested that decrease in sperm count and increase in apoptosis may be
a causative factor due to mobile radiation exposure leading to infertility (Kesari et al 2010).

In another study a significant increase in peak heart rate, serum total cholesterol, VLDL cholesterol and triglycerides concentration were noticed in acute RFR exposed male students in comparison to control students (Parkar et. al., 2010).

PGIMER, Chandigarh, has conducted a study (Panda et al., 2010) and reported long term and intensive mobile phone use may cause inner ear damage.

**References**


