

# Conservation of Biodiversity From the Radiation Hazards of Cell Phone Towers through High Temperature Superconductors Technology

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**Abstract:** Biodiversity is more important factor in the structural functioning of Ecosystems and the radiation hazards of cell phone tower has become the major challenges to the ecological services. Indeed the mobile phone technology is the matter of pride but the research reveals that it is a slow poison causing brain cancer and heart disorderness. The animals and people living nearer to the mobile towers shows the elevated rate of disease. The surprising reports due the Radiation Hazards of Cell Phone Towers are that the number of sparrows across the country has been falling down drastically and there is the sudden disappearance of squirrels from the forms due the emission of stronger Electro Magnetic Radiation. *Aberdeen Bazar* is the most populated area of UT Administration, in which, there are three tall towers one is at *Babu line*, the other is at Supply line and the third one is installed beside *Police – Mosque* have claimed untimely death of 10 persons in these areas. The area of concern is the base station and their antennas, which provides the link to and from cell phones. This is because, in contrast to the hand sets, its radio frequencies are emitted continuously and is more powerful to the closer areas of the tower. The safety standard of measurements of exposures are 6 minutes per day and Electro Magnetic Field of  $4500\text{mw/m}^2$ . People who lives closure to cell tower by 24X7 are experiencing these exposure leads to 'Possibly carcinogenic to human' and may cause brain cancer.

The people living closer to the cell phone tower have requested to shift the tower, shifting the tower is not the solution to the problem, invariably that will end up the cell phone connectivity in certain areas. Instead of removing the towers and passing the problem to other peoples and to over come this radiation hazard problems, it is recommended that the amplification of power in the cell tower is to be reduced, by reducing the gain of the antenna, by reducing the coverage area, by using more repeaters, by increasing the height of the tower and through innovative technology such as coupling an active radiation shielding technology, like radiation protection architecture utilization of high temperature superconducting magnets etc.,

**Keywords:** Biodiversity, Ecosystems, Electro Magnetic Radiation, High Temperature Superconductors, etc

## I. INTRODUCTION

Conservation and promoting sustainable use of biodiversity is one of the challenges in the Islands. Biodiversity is the most important factors of structural function of Ecosystem and the radiation hazards of Mobile Phone because the major challenges to the Ecological services, which leads to brain cancer and heart disorderness and even causing disappearance of birds like sparrows and squirrels from the forms.

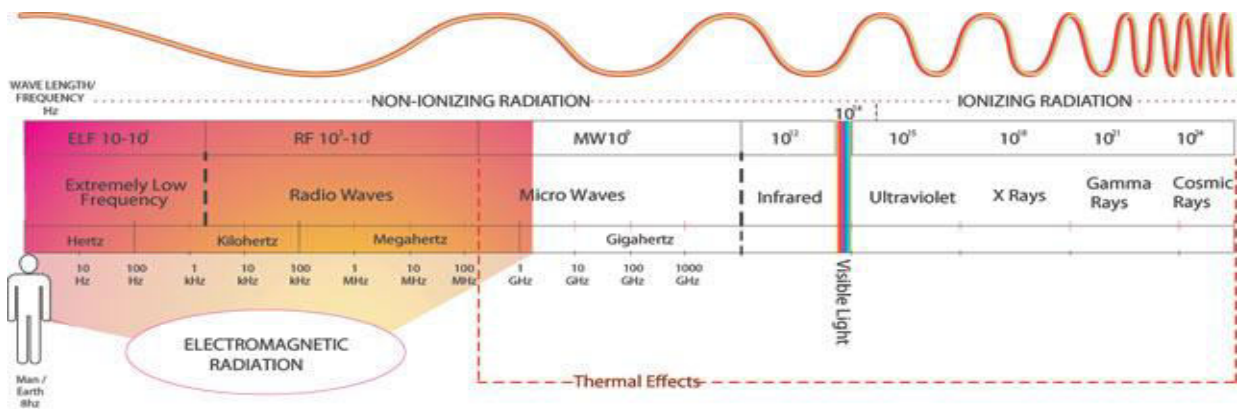
For the sustainable use and conservation of biodiversity of our island needs effective methods in science and Technology. This is because the conservation and sustainable use are knowledge intensive activities and cannot attained without investments in the generation and application of Scientific knowledge and Technological Innovations. The unique species of plants and animals as well as the ecosystems considers the Islands natural wealth. However this Biodiversity is underutilized and is being lost at the alarming rate. The surprising reports due the Radiation Hazards of Cell Phone Towers are that the number of sparrows across the country has been falling down drastically and there is the sudden disappearance of squirrels from the forms due the emission of stronger Electro Magnetic Radiation. The people living closer to the cell phone tower have requested to shift the tower, shifting the tower is not the solution to the problem, invariably that will end up the cell phone connectivity in certain areas.

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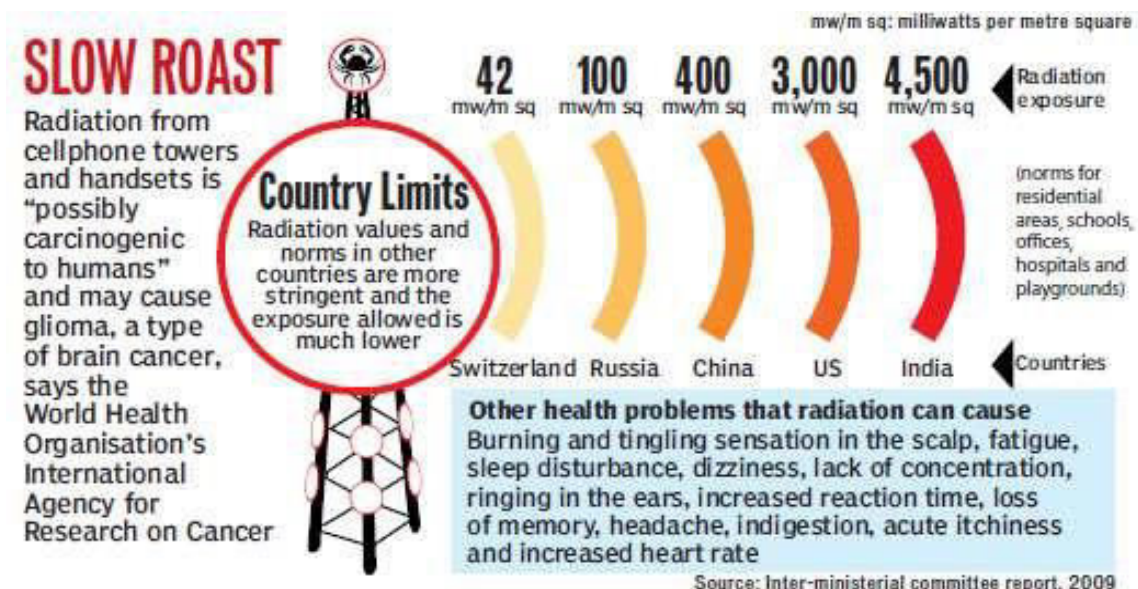
## II. THE EFFECT OF HARMFUL ELECTROMAGNETIC RADIATIONS OF MOBILE TOWERS ON HUMAN BODIES

Human body is itself is electromagnetic (very low around 10 hertz frequency). Each of our cell has it's own electromagnetic field when we exposed to the cellular tower frequency which is very high our body's EMF (electromagnetic field) disturbed and thus caused very serious types of damages to our cells, brains etc human body consists of 70% liquid. It is similar to that of cooking in the microwave oven where the water in the food content is heated first. "Microwave absorption" effect is much more significant by the body parts which contain more fluid (water, blood, etc.), like the brain which consists of about 90% water. (Fig-1).



## III. HEALTH PROBLEMS

In India ,the radiation exposure to the people living closure to the Mobile Tower is 4500 mw/m<sup>2</sup> ,whereas the country like Switzerland is producing more number of channels even better qualities of pictures with the Electromagnetic Exposures with the magnitude of 45 mw/m<sup>2</sup> . It represents that Indian Mobile Towers emitting EM radiation 107.1 times of the countries like Switzerland. In comparison to our country it is just 4450 mw/m<sup>2</sup> more than that of Switzerland .As a result of this EM radiation exposure brain caner like dangerous disease have been produced to the people the people of India living nearer to the Mobile Towers.(Fig-2).



Disrupted sleep, headaches, dizziness, altered reflexes, depression, fatigue, joint pains, heart disorders, Alzheimer's, Parkinson, DNA damage and cancers are just some of the health hazards of exposure to cell tower radiation. No one knows when and how this radiation exposure will come to an end. So, it is our prime duty to find a permanent solution to save the people of India from this harmful exposure without losing the pride of the Technology.

### 3.1) Standards of Radiation Exposure

These safety standards are based on 6 minutes/day exposure, without accounting for people who live close to cell towers 24x7. The norms allow EMF of 4,500 mw/sq2,"

### 3.2) Recommendations

It is recommended that the amplification of power in the cell towers be reduced by removing the power amplifier or by reducing the gain of the antenna. By reducing the power, coverage area will be reduced, which can be taken care of by using more cell towers or repeaters or in-building solutions. The height of towers should be increased. All towers in close proximity to schools and hospitals should be checked and removed, if too close. By using shielding ,repeaters, and High Temperature Superconductor (HTSC) Magnets , the radiation exposure to the people nearer to tower can be reduced to some certain extents.

## IV. EFFECTS ON BIRDS AND ANIMALS

Once the sparrows and squirrels were abundance in the cities and market places in our country. Due to the deforestation, uncontrolled alarming rate of increase in the population and the emerging mobile towers are causing them to disappear from the landscape. Now a days we can never see bees, sparrows, pigeon, and squirrels flying and staying nearer to the Mobile Towers .This is because, the surface of the sparrows and squirrels are much larger than the human bodies, hence they observe greater amount of radiations [2]. ( Fig-3)



Since they are smaller structure and contains less amount of fluids in their body, as the stronger EM radiations from the Mobile Tower falls on its body it cooks the fluids in their bodies like heating oven, Hence the sparrows and squirrels are unsafe. In order to product themselves they are escaping away from the mobile Towers.

## V. SPECIFIC AND ABSORPTION RATE (SAR )

- Specific and Absorption Rate
- it is a measure of the amount of radio frequency energy absorbed by the human body while using a mobile phone) so that radiation does not affect human health.
- Presently, India's SAR limit is 2 watt per kg
- The Inter-ministerial Committee wants SAR to be 1.6 watts per kg. and that all the mobile manufacturers gives specific information about SAR on their product packages.
- This new SAR limit would not affect the mobile manufacturer because almost all of them already adhere to the US standard.

However, it'd increase the production cost for cheap mobile phone manufacturers (Chinese type) because they'll have to use better quality material to comply to the new SAR limits

#### 5.1) Precautions

- Using a wired headset
- Putting your cell phone on speaker mode
- Using a wireless Bluetooth headset or earpiece, which emit radiation at far lower levels than cell phones
- Carry your cell phone away from your body—in a purse, briefcase or computer bag—not in your pocket where it is pressed up against you.

## VI. INNOVATIVE TECHNOLOGY

The Superconducting Magnets Technology has made great strides in the last decade. The coupling maturity technology with the potential innovative magnetic configuration aims to restart the concept of magnetic shielding. The focus is to analysis a new configurations with the current technology [3-5].

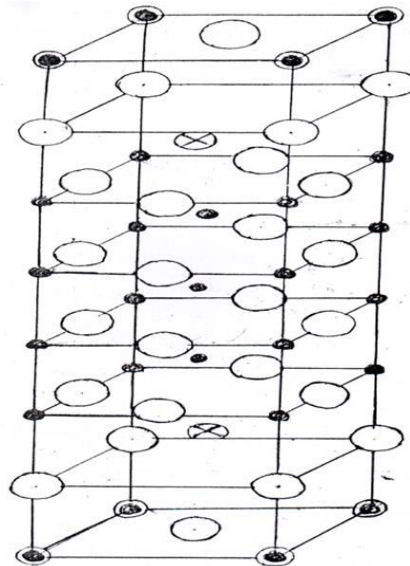


Fig. 4. The Crystal Structure of  $TlCa_3Ba_2Cu_4O_{11}$

$TlCa_3Ba_2Cu_4O_{11}$  HTSC undergoes Tetragonal to Orthorhombic transformation, which causes the crystal deformation [6-10]. During the transformation this transformation the crystal take up Oxygen and as a result the c-axis shrinks leading to the formation of microcracks perpendicular to this axis. When  $TlCa_3Ba_2Cu_4O_{11}$  melts oxygen gas is released from the crystal and some of the gas remains in the sample resulting in the formation of microvoids. This defects are difficult to eliminates and causes a deterioration of the Mechanical properties. The interaction of the trapped filed and the current causes as outward pressure directly proportional to the trapped field. Therefore the Tensil strength ( $\sigma_B$ ) sets the maximum trapped field ( $B_{max}$ ), which is given by

$$\sigma_B = 0.282 B_{max}^2$$

According to the relation, the maximum trapped field ranges form 6.0 to 9.4 Tesla in a bare bulk superconductor.

Adding of silver has found effective in improving the mechanical properties, producing a slight increase in the maximum trapped field ranging 14.35 Tesla , because the bulk is compressed owing to a difference in the thermal contraction achieved at 22.5 K.

In addition to this , a resin can penetrate in to a bulk superconductors. When the  $TlCa_3Ba_2Cu_4O_{11}$  was immersed in a molten resins , the resin permeated into the bulk through micro cracks having opening on the surface. The voids connected to these cracks were also filled with resin which drastically enhances the Tensil strength from 18.4 to 77.4 M Pa. However , a large difference in the thermal expansion coefficient between  $TlCa_3Ba_2Cu_4O_{11}$  and the resin caused damages in the surface resin layer during thermal cycles and the trapped field measuring at 77 K by cooling the sample with liquid nitrogen in IST.

**VII. CONCLUSION**

For the sustainable use and conservation of biodiversity of our island needs effective methods in science and Technology. This is because the conservation and sustainable use are knowledge intensive activities and cannot be attained without investments in the generation and application of Scientific knowledge and Technological Innovations. It is the right time to check the exponential growth of the decay of this Biodiversity and to reduce the untimely death rate of human being from the EM radiations from Mobile towers in Andaman and Nicobar islands through innovative technology such as coupling an active radiation shielding technology, like radiation protection architecture utilization of high temperature superconducting magnets etc., Therefore the bio diversity of this ISLANDS can be conserved from the EM radiation. Now a days we can never see bees, sparrows, pigeon, and squirrels flying and staying nearer to the Mobile Towers. This is because, the surface of the sparrows and squirrels are much larger than the human bodies, hence they observe greater amount of radiations. The interaction of the trapped field and the current causes an outward pressure directly proportional to the trapped field ranges from 6.0 to 9.4 Tesla in a bare bulk superconductor.

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