500-m Set-Back for Cell Phone Towers

India already prohibits placement of cell phone towers near schools or hospitals, and Canada (Standing Committee on Health) as well as many European countries are looking into siting guidelines for cell phone towers. Siting restrictions are intended to insure the safety of vulnerable populations like kids and those with illnesses. Since these individuals are sprinkled everywhere in society, a set-back requirement for new base-station (BS) cellular towers, including micro-towers, should be based on the Largest Observed Adverse Effect Distance (LOAED), and could be universally applied.

Since there is no epidemiological experience with 5G and since exposures are intended to rise and become more irregular with 5G, a conservative LOAED should be based on observations from the past, and include all observed health effects.

Michelozzi et al 2002 describe an increased risk for childhood leukemia at distances up to 6 km from the powerful Vatican Radio transmitters near Cesano, Italy, which led to compensation by decision of Italy's Supreme Court[PH1].

Santini et al 2002 surveyed by questionnaire[PH2] 530 people living or not in proximity to cellular phone BSs in France. Eighteen different symptoms (Non Specific Health Symptoms-NSHS), described as radiofrequency sickness, were studied. Certain complaints are experienced only in the immediate vicinity of BSs (up to 10 m for nausea, loss of appetite, visual disturbances), and others at greater distances from BSs (up to 100 m for irritability, depressive tendencies, lowering of libido, and up to 200 m for headaches, sleep disturbances, feeling of discomfort). In the 200 m to 300 m zone, only the complaint of fatigue is experienced significantly more often when compared with subjects residing at more than 300 m or not exposed (reference group). For seven of the studied symptoms and for the distance up to 300 m, the frequency of reported complaints is significantly higher ($P<0.05$) for women in comparison with men.

Khurana et al 2010 provides a review of 10 BS proximity and neurobehavioral effects, and three investigations of cancer. Eight of the 10 studies reported increased prevalence of adverse neurobehavioral symptoms or cancer in populations living at distances < 500 meters from BSs.

Dode et al 2011 provides the most detailed information. Belo Horizonte is the third largest city in Brazil. It was been selected by the Population Crisis

Committee of the United Nations (UN, 2007) as the metropolis with the best quality of life in Latin America. Its health system is considered very good, according to the Atlas of Human Development (2000)/United Nations Development Program).

In 2011, a 10 year study on cell phone antennas was released by the Municipal Health Department and several local universities. The study was conducted in a broad environmental context, aiming to verify if there is a spatial correlation between the cellular telephony system BS location and the cases of death by neoplasia during the period between 1996 and 2006. Three data banks were used: 1. death by neoplasia documented by the Municipal Health Department; 2. BS documented in ANATEL (Telecommunications National Agency); and 3. census and demographic city population data obtained from official archives provided by IBGE (Brazilian Institute of Geography and Statistics). The results show that approximately 856 BSs were installed through December 2006.

Between 1996 and 2006, 7191 deaths by neoplasia occurred and within an area of 500 m from the BS, the mortality rate was 34.76 per 10,000 inhabitants. Outside of this area, a decrease in the number of deaths by neoplasia occurred. The greatest accumulated incidence was 5.83 per 1000 in the Central-Southern region and the lowest incidence was 2.05 per 1000 in the Barreiro region. During the environmental monitoring, the largest electric field measured was 12.4 V/m and the smallest was 0.4 V/m. The largest power density was 407,800 μW/m², and the smallest was 400 μW/m².

Pearce et al 2020 provides the most recent assessment, and promotes a 500 m set-back to limit future liabilities of the cell phone industry, based on correlation with headaches, dizziness, depression and other neurobehavioral symptoms, as well as increased cancer risk.

Affuso et al 2018 examines the economic impact on home values. For properties located within 0.72 kilometers of the closest tower, results reveal significant declines of 2.46% on average, and up to 9.78% for homes within tower visibility range compared to homes outside tower visibility range.

It is almost inevitable that such economic impacts will increase in the future.