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National Report (REPUBLIC OF KOREA)

Public Concerns and Risk Communications

In spite of our efforts for risk communications in last several years, the level of public concerns about RF and ELF EMFs is still very high in Korea. The number of public appeals for base stations filed to government offices and operators are about 50-100 each year. Government officers and operators are taking care of the complaints very actively by redesigning or by removing such base stations. A large-scale measurement plan for base stations and broadcasting stations is under development. Regarding power lines and substations, the number of complaints filed to KEPCO (Korea Electric Power Corporation) is about 200 every year, and KEPCO is also actively taking care of such complaints.

An EMF web site for two-way communication (www.emf.or.kr, www.kepcoco.kr) is under operation. From 2004, two kinds of News Letters, one for EMF measurement standards and the other one for biological effects, exposure limits and policies are published and distributed twice a year. A big project by KEPCO is under way to construct “a center for the public information dissemination for ELF EMF” for risk communication. It is planned to open in 2009.

EMF Policies

The study to revise the MIC(Ministry of Information and Communication) ordinance for exposure limits, effective from January 2002, is still ongoing, main issues being addition of SAR limits for torso and extremities, inclusion of SAR limits for workers as well as limits for contact/induced currents and pulsed EMFs. MKE (Ministry of knowledge Economy) also made a technical standard for 60 Hz power-line installation in 2004. Regulations for the EMFs from stationary installations (mobile base stations, broadcasting transmitters, etc.) will be mandated from June 2007, and a measurement standard for the EMF exposure assessment from such installations has been prepared. To prepare for possible adoption of precautionary principle, a research project for cost-benefit analysis as well as other related issues is under way, both for ELF and RF EMF.

EMF Researches

There are two separate EMF research projects, one for RF/MF and the other for ELF. The first-phase EMF research project for RF/MF (2000-2004) was finished. It was supported by MIC (Ministry of Information and Communication) and partly by service providers, and the total budget was about 9.0 billion won. The second-phase research project for RF/MF EMF has been started (2008-2012). The total budget is 9.5 billion won for 5 years, which is supported by KCC (Korea Communications Commission), which took over the role of the former MIC recently, and partly by service providers. Main research topics include epidemiological studies, in vivo and in vitro studies, mainly for multiple exposure from several sources (CDMA, WCDMA, wireless LAN, RFID, etc.) as well as engineering studies.

A 6-year research project for ELF EMF (2002-2008) is on going, which is supported by MKE (Ministry of Knowledge Economy), which took over the role of the former MOCIE (Ministry of Commerce, Industry and Energy) recently, and partly by KEPCO. The total budget is about 8.0 billion won, and main research topics include epidemiological studies and *in vivo* studies for ELF, as well as engineering studies and the construction of a facility for risk communication.

Major EMF research topics recently finished or currently on going are summarized below.

Epidemiological Study

- Large- scale case-control study of cancers risk in children for mobile-phone exposure (2008-2012)
- Epidemiological study for the residents around base stations, including accurate exposure assessment (2006-2007)
- Large-scale epidemiological study for power-line EMF exposure: Case-control study (2003-2008)

Volunteer Study

- Large-scale volunteer study for the effects of mobile-phone EMFs on auditory nerve, middle and internal ear etc. (2008-2012)

In vivo and in vitro Study

- Long-term *in vivo* and *in vitro* studies for the effects of 20 kHz magnetic field on mammary tumorigenesis (2002-2007)
- Two *in vitro* studies for mobile-phone EMF exposure at 848.5 MHz and 1762.5 MHz, mainly for DNA expression and cellular effects (2006-2007)
- *in vivo* and *in vitro* studies for multiple exposure from several sources (CDMA, WCDMA, wireless LAN) (2008-2012)
- Large-scale long-term *in vivo* study of brain cancer for power-line EMF exposure (2002-2006)
- Large-scale long-term *in vivo* study of leukemia using Inbred strain for power-line EMF exposure (2006-2008)

Engineering Study

Ongoing researches in engineering area are quite active in Korea, which include development of exposure systems for biological studies, dosimetry, exposure reduction technologies including passive loop system for 60 Hz MF reduction, assessment of EMF exposure environments, etc.

Prof. Jeong-Ki Pack
Chungnam National University
jkipack@cnu.ac.kr