International EMF Project

7th progress report
International Advisory Committee
6-7 June 2002

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International Management

An International Advisory Committee has been established from representatives of the international and national collaborating agencies, and WHO collaborating institutions.
International Advisory Committee
Terms of Reference

✦ Provide oversight on the conduct of the Project.
✦ Review Project outputs
✦ Provide a forum for a co-ordinated international response on the health concerns raised by exposure to EMFs.
  – Biological effects
  – Health issues
  – Use of precautionary measures
  – Standards
Role of WHO staff in EMF Project

- Facilitate and implement the programme agreed by the International Advisory Committee
- Form part of the non-voting secretariat at all meetings and expert groups
- Compile minutes, fact sheets and reports of meetings published after comments by IAC and outside experts
- Give presentations summarising the conclusions of WHO meetings or expert groups
- Ensure compliance with WHO’s conflict of interest policies (Committee membership, funding, etc)
Welcome to the International EMF Project

Technologies using the electromagnetic spectrum have provided immense benefits and reshaped the way we communicate, practice medicine, travel, conduct business and manufacture goods. While extensive research has been conducted into possible health effects of exposure to many parts of the spectrum, not all frequencies have been fully researched. Further, some of this research has suggested that exposure to electromagnetic fields (EMF) may produce a broad range of health effects such as cancer, changes in behaviour, memory loss, Parkinson's and Alzheimer's diseases. While insufficient research has been conducted to substantiate these effects, sufficient concerns and perceptions of risks have been raised that there is an urgent need for an accelerated programme to provide scientific consensus and clarification of these issues.

The International EMF Project was established by WHO in 1995. For the Project, EMFs are defined as electromagnetic fields with frequencies from 0 to 300 GHz.

- **Static fields (0 Hz)**: Magnetic levitation trains for public transportation, magnetic resonance imaging devices used in medicine, and electrolytic devices using direct electric currents for
SCIENTIFIC REVIEWS

Reviews of the scientific literature are conducted to:

⇒ Provide status report on possible health effects
⇒ Identify gaps in knowledge that need further research leading to better health risk assessments

Scientific reviews:

⇒ RF range (10 MHz-300 GHz), Munich, Germany (1996)
⇒ Static and low frequencies (0-300 Hz) Bologna, Italy (1997)
⇒ Psychosocial impacts of EMF exposure in Graz, Austria (1998)
⇒ Intermediate frequencies (300 Hz-10 MHz) Maastricht, The Netherlands (1999)
⇒ Environmental impacts of EMF, Ismaning, Germany (1999)
⇒ RF pulse-modulated fields in Erice, Sicily, Italy (1999)
⇒ Adverse Temperature Levels in the Human Body, Geneva, March 2002
⇒ Effects of EMF on children (being organized)
⇒ Precautionary principle (being organized)
⇒ Mechanisms (To be organized)

Science updates given at regional meetings with Standards Harmonisation activity
Scientific Journal Publications

- E Litvak, KR Foster and MH Repacholi (2002) Health and safety implications of exposure to electromagnetic fields in the frequency range 300 Hz to 10 MHz., Bioelectromagnetics 23(1) 68-82.
- KR Foster, JM Osepchuk, and MH Repacholi, Environmental impacts of electromagnetic fields from major electrical technologies, Submitted to Environmental Health Perspectives 2002
The International EMF Project. Fact Sheet #181, Oct 1997
Physical properties and effects on biological systems. Fact Sheet #182, Oct 1997
Health effects of radiofrequency fields. Fact Sheet #183, Oct 1997
Public perception of EMF risks. Fact Sheet #184, Oct 1997
Mobile telephones and their base stations. Fact Sheet #193, updated June 2000
Video display Units (VDUs) and human health. Fact Sheet #201, July 1998
Extremely low frequency electromagnetic fields. Fact Sheet #205, Nov 1998
Radars and Human Health. Fact Sheet #226, June 1999
Cautionary Policies (WHO Backgrounder), March 2000
ELF fields and cancer Fact Sheet #263, October 2001
Others for review during this meeting (Environmental impacts of EMF, Hypersensitivity, Intermediate frequencies, Microwave ovens, RF overexposure, Results of Thermal workshop (to be drafted), Protection of the public (to await policy options meeting)….any others?

On home page: http://www.who.int/emf/ in multiple languages
RESEARCH CO-ORDINATION

A research co-ordination committee meeting in Cape Town indicated that areas requiring further research:

➨ Possible effects of EMF exposure (particularly RF) on children

➨ Implication of the IARC classification of ELF magnetic fields as a 2B carcinogen

WHO EMF research agenda being revised for web site
 Agenda for Research

I. INTRODUCTION

This Introduction is followed by the definitions used by WHO International EMF Project and a discussion of the process used to arrive at this Research Agenda. The next section of the agenda is a list of needed EMF research that still needs to be completed so WHO will have sufficient information to make improved assessments of any health risks from exposure to EMF. The list of required research is followed by a set of general guidelines for quality EMF research. This document concludes with a list of references and bibliography that includes resources for further investigation of the characteristics of good EMF research, in addition to the specific items referred to in this document.

A. GENERAL

Potential effects of exposure to static and time varying electric and magnetic fields are causing significant public and occupational health concerns and need scientific clarification. Electromagnetic fields (EMF) represent one of the most common and the fastest growing environmental influences in our lives, about which anxiety and speculation are spreading. Health effects such as cancer, changes in behavior
EMF Research Database

This database of research projects has been assembled as a service to the research community. Its purpose is to inform researchers worldwide about projects relevant to WHO's EMF Research Agenda that still needs to be conducted or those that are in progress. This agenda needs to be completed to allow WHO to make better health risk assessments from EMF exposure. It also is intended to inform members of the research community about projects of which they might otherwise not be aware.

Note that the database is limited to studies relating to biological effects and human health. In addition, for RF fields, only studies using non-thermal exposures were included.

- Click here if you would like to submit a new study for inclusion in WHO's EMF Research Database
- To submit changes or corrections to an existing entry, take note of its ID Number and click here to send email to the Project Secretariat. Make sure you specify the study's ID Number in your email as a reference.

EMF Database Search Engine

WHO Database  IEEE Database

Please note that no information beyond that found in this database is available from the International EMF Project. Further information can be obtained from the Principal Investigator. Investigators of funding organizations wishing to inform the International EMF Project of research that may be relevant to WHO's EMF research agenda should contact the Project Secretariat. They should furnish the information contained in the format for projects in this database and sufficient additional information to show that the project will both address a question...
Schedule of health risk assessments

2001  IARC carcinogen identification and evaluation of static and ELF fields
2003  WHO/ICNIRP health risk assessment of static and ELF fields
2005  IARC carcinogen identification and evaluation of RF fields
2006-7 WHO/ICNIRP health risk assessment of RF fields

WHO will incorporate IARC conclusions into WHO task group reviews of cancer and non-cancer risks and publishes them as WHO monographs. Anticipated all reports published by 2007.
WHO/IARC publications

Harmonization of EMF Standards

Differences in the EMF limit values in standards in some countries are, in some cases, over 100 times.

This raises concerns about their safety and has led to public anxiety about increasing EMF exposures from the introduction of new technologies.

The purpose of this activity is to work towards international agreement on a framework for developing guidelines on protection of the public and workers from exposure to EMF.
Standards Harmonization Meetings

> Xi'an, China 23-26 October 2000.
> San Antonio, Texas 13-14 November 2000
> Lima, Peru 7-9 March 2001
> Bulgaria 30 April - 4 May 2001
> South Korea, 22-24 October 2001
> Cape Town, South Africa, 4-7 December 2001
> Moscow/St Petersburg, Russia, 17-25 Sept. 2002
> Guilin, Guangxi, China 18-22 April 2003
> International consensus meeting, Geneva, late 2003
Framework for Developing
EMF Standards

DRAFT

International EMF Project
World Health Organization
Geneva, Switzerland

December 2001
International EMF Project

EMF WORLD WIDE STANDARDS

Compiled by Dr Dina Simunic
## General details

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СИСТЕМА СТАНДАРТОВ БЕЗОПАСНОСТИ ТРУДА

ЭЛЕКТРИЧЕСКИЕ ПОЛЯ
ПРОМЫШЛЕННОЙ ЧАСТОТЫ

ДОПУСТИМЫЕ УРОВНИ НАПРЯЖЕННОСТИ И ТРЕБОВАНИЯ
К ПРОВЕДЕНИЮ КОНТРОЛЯ НА РАБОЧИХ МЕСТАХ

ГОСТ 12.1.002—84

Издание официальное

Цена 3 коп.

ГОСУДАРСТВЕННЫЙ КОМИТЕТ СССР ПО СТАНДАРТАМ
EMF risk perception, communication and management

Information gathered from international reviews in Vienna in 1997 and Ottawa in 1998. A summary report of the Ottawa meeting, entitled “EMF Risk Perception and Communication” by LM Brodsky, W Leiss, D Krewski and MH Repacholi has been completed and has been submitted for publication.

A user-friendly handbook (Establishing a dialogue on risks from electromagnetic fields) has been completed and is being published.

Question: Do we need a monograph with greater detail on this topic?
Press Releases

- WHO clarifies its position on health effects of mobile phone use. Note for the press No 14 10 October 2001
Questions for meeting

Do you want to proceed with the development of the detailed Monograph on risk perception, communication and management ..... or is the current Handbook sufficient?

Given the public concern, should WHO prepare a statement on the feasibility of conducting valid scientific studies on mobile telephone base stations?

The Thermal Workshop was closed to specialists: Should future workshops, such as one on Sensitivity of Children to EMF be open?

Are there any other projects or information needed by IAC members that is not currently being provided?

Is the web site adequate and informative?

Should EMF management activity develop model legislation?

Other topics that need to be addressed?