



# THE INTERNATIONAL EMF PROJECT

## Progress Report June 2009-2010



**World Health  
Organization**



# CONTENTS

<b>1. OVERVIEW</b> .....	<b>4</b>
<b>1.1. MEMBERSHIP</b> .....	<b>4</b>
<b>1.2. COLLABORATION</b> .....	<b>5</b>
<i>International agencies</i> .....	<i>5</i>
<i>WHO collaborating centres</i> .....	<i>7</i>
<b>1.3. SECRETARIAT</b> .....	<b>7</b>
<i>Personnel</i> .....	<i>8</i>
<i>Funding</i> .....	<i>8</i>
<b>2. RISK ASSESSMENT AND SCIENTIFIC ACTIVITIES</b> .....	<b>10</b>
<b>2.1. RESEARCH EVALUATION</b> .....	<b>10</b>
<i>Environmental Health Criteria (EHC)</i> .....	<i>10</i>
<b>2.2. RESEARCH COORDINATION</b> .....	<b>11</b>
<i>Research agenda</i> .....	<i>11</i>
<i>WHO input to national agencies</i> .....	<i>12</i>
<i>Research database</i> .....	<i>12</i>
<b>3. RISK MANAGEMENT ACTIVITIES</b> .....	<b>13</b>
<b>3.1. MODEL LEGISLATION</b> .....	<b>13</b>
<b>3.2. STANDARDS DATABASE</b> .....	<b>13</b>
<b>3.3. LOCAL AUTHORITIES BROCHURES</b> .....	<b>14</b>
<b>3.4. COUNTRY FOCUS</b> .....	<b>14</b>
<b>4. RISK COMMUNICATION ACTIVITIES AND RESOURCES</b> .....	<b>15</b>
<b>4.1. ENQUIRIES</b> .....	<b>15</b>
<b>4.2. WEBSITE INFORMATION</b> .....	<b>15</b>
<i>Home page</i> .....	<i>15</i>
<i>National contacts and information</i> .....	<i>15</i>
<b>4.3. EDUCATION AND LEARNING PROGRAMS</b> .....	<b>15</b>
<b>4.4. WHO PUBLICATIONS</b> .....	<b>16</b>
<i>Fact sheets</i> .....	<i>16</i>
<i>Publications</i> .....	<i>17</i>
<b>4.5. MEETINGS</b> .....	<b>17</b>
<b>4.6. UPCOMING MEETINGS</b> .....	<b>18</b>

## 1. OVERVIEW

In May 1996, in response to growing public concern in several Member States over possible health effects from exposure to an ever-increasing number and diversity of EMF sources, the World Health Organization (WHO) launched an international project to assess the health and environmental effects of exposure to electric and magnetic fields, which became known as **the International EMF Project**.

The International EMF Project brings together current knowledge and available resources of key international and national agencies and scientific institutions in order to develop scientifically-sound health risk assessments of exposure to static and time varying electric and magnetic fields in the frequency range 0-300 GHz.

This Project has been devised to provide authoritative and independent peer-review of the scientific literature. Since its inception, the objectives of the EMF Project have been to:

- ❖ review the scientific literature on biological effects of EMF exposure;
- ❖ identify gaps in knowledge requiring research that will improve health risk assessments;
- ❖ encourage a focused agenda of high quality EMF research;
- ❖ formally assess health risks of EMF exposure,
- ❖ encourage internationally acceptable harmonized standards;
- ❖ provide information on risk perception, risk communication, risk management; and,
- ❖ advise national programs and non-governmental institutions on policies for dealing with the EMF issues.

### 1.1. MEMBERSHIP

The EMF Project is open to any WHO Member State government, i.e. department of health, or representatives of national institutions concerned with radiation protection. Over 50 national authorities are currently involved in the Project. Over the past year, several countries have been contacted to join the Project, such as Oman, Tunisia, Liechtenstein, Ukraine, Iran, Libya, Morocco and the United Arab Emirates. Contact has been made with other countries that have recently had structural and personnel changes, such as Portugal, Spain, Germany, Turkey, Italy and Bulgaria. Further outreach is planned, but the challenge remains to locate the appropriate governmental contact at country level, with interest and responsibility regarding EMF protection. In some Member States, other Ministries may show interest, such as the Ministry of Industry or of Energy (dealing with electricity applications), the Ministries of Telecommunications (e.g. mobile phones), or Transport (radar equipment for air navigation), or Environment.

The national governments supporting the Project, together with representatives of international organizations and independent scientific institutions provide oversight for the International EMF Project through the International Advisory Committee (IAC). The IAC meets once a year to discuss national activities, current research programmes, legislation and public concern, and advises the International EMF Project on its activities.

The objectives of the IAC are:

- ❖ to provide a forum for a coordinated international response on the health concerns raised by exposure to EMF fields,
- ❖ to review outputs of the Project, including scientific information related to public and occupational health, and environmental management of the EMF issue, and
- ❖ to provide oversight on the conduct of the Project.

Over the last 14 years, activities have closely followed the original work plan, and most activities have or are being implemented. It is expected that all the health risk assessments will be completed and published by 2012. The Department of Public Health and Environment is committed to ensuring that the work of the International EMF project continues subject to funding.

## 1.2. COLLABORATION

The EMF Project has formal collaboration with different entities, i.e. non-governmental organizations (NGOs), international organizations and WHO collaborating centres (see below for details). It also cooperates in an *ad-hoc* manner with other institutions (e.g. co-sponsoring of meetings, etc) and with individual experts.

### International agencies

Eight international agencies are involved in the Project (<http://www.who.int/peh-emf/project/intorg/en/index.html>). Over the reporting period, there has been active collaboration with several of them.

One of the most active collaboration is with the **International Commission on Non-Ionizing Radiation Protection (ICNIRP)** - an NGO in *formal relations* with WHO (for more information, see <http://www.who.int/civilsociety/>). Within the reporting period, ICNIRP and WHO co-sponsored a meeting on "Evaluation and Communication of Scientific Evidence and Uncertainty - Towards a Consistent Terminology in Non-ionizing Radiation" in Salzburg, Austria. The meeting was held in November 23-24 2009 and gathered. The goals of the meeting were (i) to develop a shared vision among agencies on the approach to evaluating scientific evidence for health risks from NIR exposure; (ii) to decide on a consistent terminology in NIR; and (iii) to discuss ways of describing the scientific terminology in lay-person's terms to ensure the best, accurate, evidence based information for the public.

Another major activity commissioned in 2005 by WHO to ICNIRP was a review of health effects from RF fields. This work was finalized and published in July 2009 as "Exposure to High Frequency Electromagnetic Fields, Biological Effects and Health Consequences (100 kHz-300 GHz); Review of the Scientific Evidence and Health Consequences". Munich: International Commission on Non-Ionizing Radiation Protection; 2009. ISBN 978-3-934994-10-2. (<https://www.icnirp.org/documents/RFReview.pdf>).

The **International Labour Office (ILO)**, a sister UN agency in Geneva, works closely with WHO in the area of occupational exposure to radiation, both ionizing and non-ionizing. One of its tasks over the last year has been to update its international list of occupational diseases which is annexed to the ILO Recommendation No. 194 (<http://www.ilo.org/ilolex/english/recdisp1.htm>). As one of the issues being considered related to diseases caused by RF radiation at work, ILO requested WHO's input, through its experts network, ahead of an official meeting held in Geneva in October 2009. For further information, see the ILO Technical backgrounder on the

problematic diseases in the proposed list to replace the list annexed to the List of Occupational Diseases Recommendation, 2002 (No. 194) [http://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---safework/documents/meetingdocument/wcms\\_116823.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/meetingdocument/wcms_116823.pdf).

The **Agency for Research on Cancer (IARC)**, a specialized institution of WHO, based in Lyon, France, also has links with the International EMF Project. IARC's mission is to coordinate and conduct research on the causes of human cancer, the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control. The IARC's Radiation programme includes studies of the carcinogenic effects of radiations, in particular, low doses of ionizing radiation. With regard to EMF, IARC recently published the 13-country INTERPHONE analysis of tumours of the brain in relation to radiofrequency radiation emitted by mobile telephones. A WHO press conference on this subject was held in Geneva on May 17 2010 with Dr. Christopher Wild, Director IARC, Dr Vincent Cogliano, Head of the IARC Monographs Programme and Dr Elisabeth Cardis, Principal Investigator of the INTERPHONE study.

Further discussion have also been held with Dr Vincent Cogliano to coordinate efforts to accomplish common tasks for the WHO Environmental Health Criteria on Radiofrequency Fields and the expected IARC monograph on Non-Ionizing Radiation, Part 2: Radiofrequency electromagnetic fields and radar (including mobile telephones ). The meeting for this Monograph no. 102 is scheduled for 24-31 May 2011.

The **International Telecommunications Union (ITU)** is the leading United Nations agency for information and communication technology issues, and the global focal point for governments and the private sector in developing networks and services. Two out of three of its sectors are involved with the WHO EMF Project through the Telecommunication Standardization Sector (ITU-T) Study Group 5 - Protection from Electromagnetic Environment Effects, as well as through the Radiocommunication sector (ITU-R), which invited WHO to participate in a workshop on the Exposure to Electromagnetic Fields from Wireless Systems in Athens in June 2009. Both parties also attended jointly several other meetings during the year, in Kampala, Uganda, and in Muscat, Oman. Such collaboration prompted an invitation to ITU-R to participate in IAC activities.

The **European Commission's Coordinated Action EMF-NET** has officially ended, but several outputs are still being delivered, including the proceedings of the workshop held in Stresa, Italy (2007), which will be soon available in print, courtesy of the Italian *Consiglio Nazionale delle Ricerche*.

Within the EC Second Programme of Community Action in the field of health (2008-2013), a new European health risk assessment network on EMF entitled **EFHRAN** (European Health Risk Assessment Network on Electromagnetic Fields Exposure) officially started on February 1, 2009 for a 3-year duration. The WHO EMF Project was invited to serve as member of its Advisory Board. WHO is participating as a collaborating partner, i.e. with no contractual commitments neither with the EC nor with the network. A special agreement between EC DG SANCO and WHO/EURO only allows this type of limited participation.

Further dialogue was held with the **European Commission Directorate-General for Employment, Social Affairs and Equal Opportunities (DG Employment)** based in

Luxembourg, regarding activities related to occupational exposure to EMF. The topic of MRI and the EC Directive 2004/40/EC with regard to occupational workers (which has now been postponed to 2012 - providing more time to develop further useful tools) was highlighted in a meeting on "Occupational Exposure to Electromagnetic Fields: paving the way for a future EU initiative", organized in October 2009 by the EC DG EMPL, the Swedish Work Environment Authority and Umeå University.

### **WHO collaborating centres**

A WHO collaborating centre (CC) is an institution designated by the Director-General to form part of an international collaborative network carrying out activities in support of the Organization's programme at all levels. Such designation follows a formal procedure within WHO, with specified terms of reference and annual reporting of joint activities ([http://intranet.who.int/homes/kcs/collaborating\\_centres](http://intranet.who.int/homes/kcs/collaborating_centres)). With effect from 1 June 2007, processing of designations, re-designations and discontinuations of CCs are being done electronically.

The EMF Project works with the following scientific institutions that are formally recognized as collaborating centers of WHO ([http://www.who.int/peh-emf/project/Org\\_Stru/en/index.html](http://www.who.int/peh-emf/project/Org_Stru/en/index.html)).

- Air Force Research Laboratory, TX (USA) - until January 2010
- Australian Radiation and Nuclear Safety Agency, ARPANSA (Australia)
- Institut für Strahlenhygiene, Bundesamt für Strahlenschutz, BfS (Germany)
- National Institute of Occupational Safety and Health, NIOSH (USA)
- Health Protection Agency - Radiation Protection Division (UK) - in discussion for redesignation
- McLaughlin Centre for Population Health Risk Assessment, University of Ottawa (Canada) - until end June 2009

### **1. 3. SECRETARIAT**

The Project is managed through the Radiation Programme which has the responsibility for activities related to ionizing and non-ionizing radiation. This Programme is located at WHO Headquarters in Geneva, within the Unit on "Interventions for Healthy Environments" (IHE). The mandate of IHE is to translate scientific findings on the linkages between environmental risk factors and health and on the effectiveness and cost-effectiveness of interventions into measurable health improvements in countries. The unit includes several thematic areas, such as occupational health, transport and indoor air pollution, health impact assessment and health in other settings and sectors within the Department of Public Health and Environment (PHE). PHE has for main objective to "promote a healthier environment, intensify primary prevention and influence public policies in all sectors so as to address the root causes of environmental threats to health" as described in the medium-term strategic objective 8 of the organization for 2008-2013 ([http://intranet.who.int/homes/prp/pdam/mtsp\\_pb/](http://intranet.who.int/homes/prp/pdam/mtsp_pb/)).

The Secretariat facilitates all activities and provides regular reports to the International Advisory Committee and contributors to the Project. WHO Regional Offices participate where possible and facilitate communications with countries in their respective regions. WHO staff provide coordination and project management and are available to respond to enquiries. They organize and conduct review group meetings, key research meetings, prepare and publish reports and brochures, organize the preparation and publication of monographs and scientific reports, and liaise with

consultants, collaborating agencies and key institutions to prepare material as required.

### **Personnel**

Dr van Deventer is the Team Leader of the Radiation (RAD) programme, with administrative responsibility for both the Ionizing Radiation team and leading the non-ionizing programme, which includes the WHO EMF Project and the Intersun UV Project. Mrs Lisa Ravenscroft, who joined RAD in 2005, provided the secretarial support to the team until her promotion and subsequent departure to another WHO department in August 2009. She, fortunately, rejoined the team in April 2010.

In view of this situation, the EMF Project encourages Member States to promote direct involvement of their staff in the work of the International EMF Project through secondments. Other mechanisms are available through Junior Professional Officer (JPO) programs<sup>1</sup> or through WHO's Internship Programme which provides a wide range of opportunities for students to gain insight into the work of WHO. Every year a limited number of places for internships are available.

<http://www.who.int/employment/internship/en/>

### **Funding**

WHO receives its funding principally through assessed contributions from Member States and voluntary contributions. Assessed contributions are gradually becoming a smaller proportion of the total resources received, and reliance is increasing on voluntary contributions provided by a limited number of partners or donors, small and large.

The EMF Project is currently solely funded through voluntary contributions from participating countries. These contributions are needed to cover both activities of the Project and salaries of the personnel. All contributions and accounting are audited by WHO. For any contribution, 13% of expenditure is deducted by WHO to cover administrative costs related to administering the funds, in accordance with World Health Assembly Resolution WHA 34.17.

Within WHO, the Department of Planning, Resource Coordination, and Performance Monitoring (PRP) has, as one of its mandate, to facilitate and sustain donor relationships with governments, development agencies, intergovernmental organization, and the private sector. It also develops standardized and harmonized systems for voluntary contributions. A number of countries have signed bilateral agreements with WHO for funding specific areas of work. For example, France has a bilateral agreement from 2008-2013 which includes the area of environmental health, under which EMF falls. For funding exceeding US\$100,000, PRP is involved in the agreement while for smaller amounts, Technical Units may follow up on any funding interest from the part of Ministries of Health, or other governmental bodies involved in NIR.

Several governments have given direct contributions to the WHO EMF Project, either on a periodic or ad-hoc basis. Some countries have supported financially specific activities within the Project, while others have provided in-kind contributions in the

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<sup>1</sup> The Junior Professional Officer (JPO) Programme provides young professionals who wish to pursue a career in development with hands-on experience in multi-lateral technical co-operation. JPOs are sponsored by their respective governments. Currently the following 11 donor governments sponsor JPOs for WHO: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Japan, Luxembourg, Republic of Korea and Sweden



form of staff time or development of documents and sponsorship of meetings. This past year, the range of governmental contributions for the EMF Project was from US\$ 5,000 to US\$75,000.

A summary of funds received and spent is given in Table 2 below.

**Table 1: Funding summary for the International EMF Project (July 2009 - May 2010)**

	<b>INCOME</b>
\$205,415	<b>Governments (excluding pledges)</b>
<b>USD 205,415</b>	<b>TOTAL INCOME</b>
	<b>EXPENDITURE</b>
\$246,400	Staff salary costs
\$21,896	Staff travel costs
\$57,361	Meeting participants costs (travel & per diem)
\$12,468	EMF outputs (APWs, service contracts, publications, etc)
\$5,000	Communications, mailing, and other general operating costs
<b>USD \$343,124</b>	<b>TOTAL EXPENDITURE</b>

## 2. RISK ASSESSMENT AND SCIENTIFIC ACTIVITIES

The primary goal of the International EMF Project is to assess the health risks from EMF within the frequency range 0 to 300 GHz and to develop policy options for protection of people from EMF exposure. The key **scientific objectives** of the Project are to:

- ❖ Assess the scientific literature and make a status report on health effects,
- ❖ Incorporate research results into WHO's Environmental Health Criteria (EHC) monographs where formal health risk assessments are conducted on EMF,
- ❖ Identify gaps in knowledge needing further research,
- ❖ Encourage a focused research program in conjunction with funding agencies and the global scientific community.

### 2.1. RESEARCH EVALUATION

#### **Environmental Health Criteria (EHC)**

The health risk assessments related to chemical, biological and physical agents developed by WHO are published in the Environmental Health Criteria (EHC) series (<http://www.who.int/ipcs/publications/ehc/en/>). For over 20 years, WHO has addressed possible health effects from exposure to EMF through three monographs on extremely low frequency (ELF) fields (1984), static and ELF magnetic fields (1987), and radiofrequency (RF) fields (1993).

The EHC monographs are usually revised if new data are available that would substantially change the evaluation, if there is public concern for health or environmental effects of the agent because of greater exposure, or if an appreciable time period has elapsed since the last evaluation. Three monographs spanning the 0-300 GHz EMF frequency range have been planned: static fields (0Hz), ELF fields (up to 100 kHz) and RF fields (100 kHz – 300 GHz). So far, the EMF Project has developed the first two volumes on Static Fields and ELF fields. These documents were developed following the publication of the IARC monograph on Non-Ionizing Radiation, Part 1: Static and ELF fields (2002). The IARC monographs provide a hazard identification regarding cancer, while the EHCs represent a health risk assessment of all studied (published) health endpoints, including the four classical steps of (i) hazard identification, (ii) exposure assessment, (iii) dose-response assessment and (iv) risk characterization. EHCs usually also include recommendations for protective measures.

#### **Upcoming EHC on Radiofrequency fields**

The next major task in this evaluation process is the health risk assessment of radiofrequency fields. The timing of the EHC development is contingent on the release of the expected IARC monograph on *Non-Ionizing Radiation, Part 2: Radiofrequency (RF) electromagnetic fields and radar (including mobile telephones)*. The IARC monograph meeting for vol. 102 on RF will be held at the end of May 2011, following the release of the INTERPHONE study on gliomas and meningiomas.

Possible areas of collaboration have been discussed with IARC, regarding developing a common introduction sections for both documents, gathering exposure data from other sources than published scientific literature, and development of literature

database. An effort has been undertaken through the International EMF Project to gather key relevant publications in Russian language, with a view to have them translated and included in the overall database.

A review of scientific literature on the health effects of RF fields was commissioned by WHO to ICNIRP in 2005. This review was published in July 2009 and will serve as an input to the WHO Environmental Health Criteria monograph on RF fields.

## **2. 2. RESEARCH COORDINATION**

To avoid unnecessary duplication of research effort and to make sure that all important questions are being studied, research coordination on a global level is important. To that end, the WHO International EMF Project has been providing such an umbrella for worldwide coordination and exchange of information about planned and ongoing projects.

### **Research agenda**

WHO defines as one of its six core functions to "shape the research agenda, and stimulate the generation, dissemination and application of valuable knowledge". From its inception, the WHO International EMF Project has strived to identify gaps in knowledge needing further research to make better health risk assessments, and to encourage a focused research programme in conjunction with funding agencies (<http://www.who.int/peh-emf/research/agenda/en/index.html>).

Over the past 15 years, several countries have funded research programmes and, in some cases, set up foundations to sponsor studies relating to this area. Most research funding agencies use the WHO Research Agendas as a basis for their national research programs when developing their call for proposals. Since 1997 over \$200 million of funding for research has been conducted to complete these Agendas.

Based on the research recommendations developed by the Environmental Health Criteria Task Group, research agendas have published for static fields in early 2006 ([http://www.who.int/peh-emf/research/smf\\_research\\_agenda\\_2006.pdf](http://www.who.int/peh-emf/research/smf_research_agenda_2006.pdf)), and for ELF fields in July 2007 ([http://www.who.int/peh-emf/research/elf\\_research\\_agenda\\_2007.pdf](http://www.who.int/peh-emf/research/elf_research_agenda_2007.pdf)).

For radiofrequency fields, the last EMF Research Agenda published in Spring 2006 ([http://www.who.int/peh-emf/research/rf\\_research\\_agenda\\_2006.pdf](http://www.who.int/peh-emf/research/rf_research_agenda_2006.pdf)). With the scientific developments undertaken over the past 3 years and the completion and possible renewal of several national research programs, an update of the RF Research Agenda was undertaken. A Technical Consultation meeting was held on 9-10 February 2010 in Geneva, Switzerland to develop a list of research recommendations (see Annex 1). In preparation for the meeting, background documentation was prepared to assist the WHO Technical Consultation participants. A summary of ongoing research was commissioned to Dr Bernard Veyret and circulated prior to the meeting. A list of possible research options was gathered through a survey in order to assist the technical group to formulate the WHO Research Agenda. To ensure inclusiveness, the input of stakeholders from different disciplines was sought through a web-based questionnaire undertaken in November-December 2009. The survey provided an opportunity for the consultation of individual researchers in different disciplines with diverse experiences and viewpoints. Opinions were requested from a list of around 400 experts, developed with the help of the International Advisory Committee (IAC) of the WHO International EMF Project. Over 200 research needs

from 88 entries were compiled according to pre-defined areas of research.

### **WHO input to national agencies**

The EMF Project actively works with international donors and national authorities to review, promote, and fund research topics identified by WHO. Dr van Deventer currently serves on the Programme Committee Management of the Mobile Telephone Health Research program (MTHR) in the United Kingdom, and as a member of the Swedish independent expert group on EMF, commissioned by the Swedish Radiation Safety Authority.

### **Research database**

The EMF Project has assembled a web-based database of research projects as a service to the research community. Its purpose is to inform researchers about ongoing and completed projects relevant to the EMF Project's mandate. These projects address potential biological interactions from electromagnetic fields in the non-ionizing spectrum from static magnetic and low frequency, through the radiofrequency range, and up to millimeter wave and terahertz frequencies (just below visible light).

Until recently, the database was actively updated and formed the core tool for each 5-year revision cycle of the IEEE C95.1 (radiofrequency) and IEEE C95.6 (static and low frequency) exposure standards. Because other databases exist with similar functionality, the need for maintaining the WHO database is under discussion.

### **3. RISK MANAGEMENT ACTIVITIES**

WHO's International EMF Project provides a unique opportunity to bring countries together, identify criteria for science-based standards setting and encourage the establishment of exposure limits and other control measures that provide the same or similar level of health protection for all people.

The key **risk management objectives** of the Project are to:

- ❖ facilitate the development of internationally acceptable standards for EMF exposure,
- ❖ provide information on the management of EMF protection programs for national and other authorities, including monographs on EMF risk perception, communication and management, and
- ❖ provide advice to national authorities, other institutions, the general public and workers, about potential hazards resulting from EMF exposure and possible mitigation measures.

#### **3.1. MODEL LEGISLATION**

The EMF Project has developed a Model Act and Model Regulation that provide the legal framework to provide this protection. This document was produced to assist countries that do not yet have appropriate legislation to protect their population. The Model Legislation follows the widely accepted practice among lawmakers of setting out an enabling Act which permits the responsible Minister to subsequently issue Regulations, Statutory Orders or Ordinances, as appropriate, to deal with specific areas of concern.

This legislation recommends the use of international standards that limits EMF exposure of people (ICNIRP exposure guidelines) and international standards that limit the emissions of EMF from devices (IEC and IEEE device emission standards). This model legislation is available in English, Spanish, Chinese and French. It is currently being translated into Arabic.

The Model legislation has been the basis of several legislations that are currently being developed. This past year it was presented at the National workshop on "Electromagnetic fields (EMF) exposure and health", in Kampala, Uganda (November 2009) and at the International Conference on "Radio communications: Health & Environment Perspective" in Muscat, Oman (January 2010).

#### **3.2. STANDARDS DATABASE**

A number of national and international organizations have formulated guidelines establishing limits for occupational and residential EMF exposure. The International EMF Project provides information on worldwide EMF standards in a web-accessible database which was set up in 2001 and revised in 2004. This database includes details of a number of EMF standards worldwide, with details on the limits and a link to the national web site where possible.

<http://www.who.int/docstore/peh-emf/EMFStandards/who-0102/Worldmap5.htm>

The current database is no longer maintained and its content needs to be migrated to another server platform. For the past 18 months, an important effort has been

undertaken to develop an interactive site that will enable users to view worldwide uptake of legislation and search tools will be added to provide comparison between national approaches to EMF protection. A small group has been assembled to carry out this task with the financial support of the French agency AFSSET.

### **3.3. LOCAL AUTHORITIES BROCHURES**

At the local level, municipalities often have authority over land use and building and installation permits for power lines and mobile telephony base stations. As such, they are often confronted directly by public anxiety and discontent. To help municipalities, a brochure for local authorities has been developed on Base Stations and Wireless Networks that provides local authorities with all the information they need to plan and approve the installation of mobile phone base stations. The Brochure is also intended to provide information on levels of RF fields and risks of exposure to all current wireless network fields. The current draft version has been reviewed by a couple of countries, and it is envisaged to assemble a working group to finalize this long-awaited product, following the new WHO procedures regarding formulating recommendations (see Section 2.1).

### **3.4. COUNTRY FOCUS**

In line with WHO's focus on country support, the EMF Project has provided technical support for meetings held in regions and countries that face concerns with respect to EMF.

Countries visited over the past year to support national or regional EMF programs include:

- **Greece:** Workshop on EMF and Health, organized by Minister of Transport and Communications, EETT and ITU-R, 18 June, 2009, Athens
- **Tunisia:** Workshop on "Téléphonie Mobile et Santé", organized by ANCSEP and ANF, 14 July, Tunis
- **Israel:** Workshops on "Wireless Communication: Health, Science and Policy", "Cell phones and your children's health", and "Wireless Communication: Health, Science and Policy", organized by the Environment and Health Fund, 8-9 September, Jerusalem and Tel Aviv
- **Tanzania:** 2nd East African Workshop on EMF exposure and Health, Tanzania Atomic Energy Commission, 23 November 2009, Arusha
- **Uganda:** National workshop on "Electromagnetic fields (EMF) exposure and health", organized by the Uganda Communications Commission, 5-6 November, Kampala
- **Peru:** International Forum on "telecommunications antennas and human health", organized by the Peruvian Ministry of transports and Communications, 3-4 December, Lima
- **Oman:** International Conference on "Radio communications: Heath & Environment Perspective", organized by the Ministry of Environment and Climate Affairs, the Ministry of Health and the Oman Telecommunications Regulatory Authority, 30-31 January, Muscat

## **4. RISK COMMUNICATION ACTIVITIES AND RESOURCES**

### **4. 1. ENQUIRIES**

A large number of enquiries are sent to the EMF Project from the general public, the media (e.g. the French version of Marie-Claire in March 2009, Belgian TV company RTBF <http://blogrtbf.typepad.com/qalu/2009/02/a-ne-pas-manquer-ce-mercredi-11-f%C3%A9vrier-d%C3%A8s-20h20-les-ondes-%C3%A9lectromal%C3%A9fiques.html>) and governments. Depending on the nature of the enquiries, these are usually handled by the Project staff or by the communications officers of WHO. Technical support is regularly needed - and given - as requests in other languages are often forwarded to IAC members for translation and/or response.

### **4. 2. WEBSITE INFORMATION**

The general WHO website provides information in 6 languages (Arabic, Chinese, English, French, Russian, Spanish). Scientific documents on the EMF Project website have partly been translated in some of these languages. We wish to thank all the colleagues who have provided translations in their own languages.

#### **Home page**

With the departure last August of our secretarial wizard, Lisa Ravenscroft, the EMF Project website (at <http://www.who.int/emf/>) has scarcely been updated up to May when she returned. A major revision is currently planned and thus feedback from IAC members as to the ease of navigation of the website is welcome.

#### **National contacts and information**

Many enquiries to the EMF Project are of a local nature. Therefore, a country-focused database of information that lists the Member States of the EMF Project, has been set up thanks to the input of the IAC members (<http://www.who.int/peh-emf/project/mapnatreps/en/>). Participating countries annually provide updated information for their respective pages, and this has proved to be a very useful tool worldwide.

### **4. 3. EDUCATION AND LEARNING PROGRAMS**

WHO promotes health education and research, and the EMF Project has invested in developing distance learning programs as well as co-sponsoring bioelectromagnetic courses.

On the request of WHO, Dr Bernard Veyret, of the University of Bordeaux in France developed an online course called "Methodology in Bioelectromagnetics Research." Its primary audience is the community of young scientists, world-wide, undertaking bioelectromagnetics research. The intent of the course is to introduce young scientists to the subject of bioelectromagnetics research and present physics to the biologists and biology to the physicists. It should also be of interest to teachers and the general public. It can be accessed via the EMF Project's web site at <http://www.who.int/peh-emf/about/Training/en/index.html>. Further divulgation of this website is encouraged.

WHO is also in discussion with the International School of Bioelectromagnetics "Alessandro Chiabrera" regarding co-sponsorship of their 5<sup>th</sup> course of a series, to be held in November on the topic of "Medical Applications of Electromagnetic Fields".

#### 4. 4. WHO PUBLICATIONS

The publications of the EMF Project are reviewed by the International Advisory Committee before seeking formal approval by WHO management. Recent documents are available electronically for download on the Project's website. Some of the materials are available free of charge, while priced publications are on sale through the WHO Online Bookstore <http://apps.who.int/bookorders/>.

WHO Press (WHP) receives regular requests for permission to translate our EMF fact sheets and publications. It usually grants formal permission to translate and reproduce WHO documents subject to the following conditions:

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Since the Project's inception, translations were encouraged, many of which being undertaken by members of the IAC. These translations have proven to make the EMF Project a web site well visited over the years.

<http://www.who.int/peh-emf/publications/facts/factsheets/en/index.html>

##### **Fact sheets**

Simple, easy to read information is provided through fact sheets that are formally approved by the Director General's Office. The latest EMF Fact Sheets can be found on the corporate WHO **Media Centre website**, which is aimed primarily at the press and general public (<http://www.who.int/mediacentre/factsheets/en/>). These include the following Fact sheets under the common heading "*Electromagnetic fields and public health*":

- Fact sheet N°193: Mobile phones (May 2010)
- Fact sheet N°205: Extremely low frequency (ELF) (November 1998)
- Fact sheet N°263: Extremely low frequency fields and cancer (October 2001)
- Fact sheet N° 296: Electromagnetic hypersensitivity (December 2005)
- Fact sheet N° 299: Static electric and magnetic fields (March 2006)
- Fact sheet N°322: Exposure to extremely low frequency fields (June 2007)
- Fact sheet N° 304: Base station and wireless networks (May 2006)

The fact sheet on mobile phones has recently been updated and released in conjunction with the publication of the INTERPHONE study. The fact sheet no. 304 on base stations and wireless networks will be reviewed shortly, following the publication of a systematic review regarding recent scientific findings published since 2006. This systematic review was commissioned by WHO and has recently been accepted for publication.



## Publications

C. del Pozo, D. Papameletiou, P. Wiedemann, P. Ravazzani, E. van Deventer (Editors) Electromagnetic Field Exposure: Risk Communication in the context of Uncertainty. Proceedings of the 2nd Workshop on EMF Risk Communication, Stresa, Italy, May 2-4, 2007 (In Print)

Maria Neira., Emilie van Deventer (2010). Status Of Levels And Effects Of Non-Ionizing Radiation (NIR), Proceedings of the 12th Congress Of The International Radiation Protection Association (IRPA12), Buenos Aires, 19–24 October 2008, IAEA, 2010 (In Press)

## 4. 5. MEETINGS

WHO staff members and consultants participated in a number of local, national and regional scientific meetings:

When	Where	Title
JUNE 18, 2009	Athens, GREECE	Workshop on EMF and Health, organized by Minister of Transport and Communications, EETT and ITU-R
JULY 6-7, 2009	Paris, FRANCE	Workshop on "Gouverner l'incertitude : les apports des sciences sociales à la gouvernance des risques sanitaires environnementaux", organized by AFSSET and R2S
JULY 14	Tunis, TUNISIA	Workshop on "Téléphonie Mobile et Santé", organized by ANCSEP and ANF
SEPTEMBER 8-9	Jerusalem and Tel Aviv, ISRAEL	Workshops on "Wireless Communication: Health, Science and Policy", " Cell phones and your children's health", and " Wireless Communication: Health, Science and Policy", organized by the Environment and Health Fund
OCTOBER 6-8	Umeå, SWEDEN	Workshop on " Occupational Exposure to Electromagnetic Fields: paving the way for a future EU initiative", organized by the EC DG EMPL, Swedish Work Environment Authority and Umeå University
NOVEMBER 2-3	Arusha, TANZANIA	2nd East African Workshop on EMF Exposure and Health, "Harmonizing EMF risk communication and EMF policy", organized by Tanzania Atomic Energy Commission
NOVEMBER 5-6	Kampala, UGANDA	National workshop on "Electromagnetic fields (EMF) exposure and health", organized by the Uganda Communications Commission
NOVEMBER 23-24	Salzburg, AUSTRIA	ICNIRP/WHO/IMBA Workshop " Evaluation and Communication of Scientific Evidence and Uncertainty - Towards a Consistent Terminology in Non-ionizing Radiation"

DECEMBER 3-4	Lima, PERU	International Forum on "telecommunications antennas and human health", organized by the Peruvian Ministry of transports and Communications (*attended by E. van Rongen on behalf of WHO)
DECEMBER 17	Paris, FRANCE	Workshop on " Interactions of RF with the human being" organized by WHIST Laboratories
DECEMBER 21	Zurich, SWITZERLAND	Workshop on "electrosmog" – risk assessment & public perception, organized by SEREC and ETH University
JANUARY 19, 2010	London, UNITED KINGDOM	Meeting of the MTHR Programme
JANUARY 30- FEBRUARY 1	Muscat, OMAN	International Conference on "Radio communications: Heath & Environment Perspective" organized by the Ministry of Environment and Climate Affairs, the Ministry of Health and the Oman Telecommunications Regulatory Authority
MARCH 10-11	Parma, ITALY	Symposium on "Electromagnetic fields (radiofrequencies) and health: an update of expert assessment and recommendations for actions to reduce exposures and for research", organized by AFSSET at the WHO/EURO Fifth Ministerial Conference on Environment and Health "Protecting children's health in a changing environment"
APRIL 20	Paris, FRANCE	Meeting of the Independent Expert Group on Electromagnetic Field (Swedish Radiation Safety Authority of Sweden) - <i>rescheduled until June because of the volcano eruption</i>

#### 4. 6. UPCOMING MEETINGS

**2010 Bioelectromagnetics (BEMS) Conference** (Seoul, Korea). June 14-18, 2010. This is a meeting of researchers that provides a forum for announcing preliminary results and discussing research methodology and projects.

**6th International Workshop on Biological Effects of Electromagnetic Fields**  
Bodrum, Turkey, 10-14 October 2010

**5th Course of the International School of Bioelectromagnetics "Alessandro Chiabrera"**, on Medical Applications of Electromagnetic Fields, (Erice, Sicily, Italy): November 23 to November 28.

The fifth Course is addressed to young researchers and to biologists, engineers and physicians who conduct research on bioelectromagnetics or work in a medical environment. The aim of the Course is to present the most advanced knowledge on the mechanism of action of EMF, to identify cellular targets and to discuss the rational basis for the use of EMF in clinical practice. The Course is focused on their non-thermal effects.

**NIR and Children Conference**, tentatively in May 2011, in Slovenia.

To be co-sponsored by COST Action BM0704 “Emerging EMF Technologies: Health Risk Management”, World Health Organization (WHO), International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the European Society for Skin Cancer Prevention (EUROSKIN).

**2011 Bioelectromagnetics (BEMS) Conference** (Halifax, Nova Scotia). This is a meeting of researchers that provides a forum for announcing preliminary results and discussing research methodology and projects.

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**FOR FURTHER INFORMATION ON THE INTERNATIONAL EMF PROJECT**

Visit the web site at: <http://www.who.int/emf/>

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