

THE INTERNATIONAL EMF PROJECT

Progress Report

June 2015-2016



World Health
Organization

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1. OVERVIEW

In May 1996, 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**. This was 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 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.

The Project has been designed 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. Since the commencement of the EMF Project, over 50 national authorities have been involved. During the reporting period, the EMF Project has been in contact with several new countries, including Eastern Caribbean (including Grenada, St. Vincent and the Grenadines, Saint Lucia, Commonwealth of Dominica and St. Kitts and Nevis), Burkina Faso, Ghana, Madagascar, and Sudan. In the past year, new representatives have joined from Belgium, Burkina Faso, Croatia, France, Germany, Iceland, India, Madagascar, Norway, Singapore, Slovenia, Thailand, and USA.

While further outreach is planned, the challenge remains to locate the appropriate governmental contact at country level, with interest and responsibility regarding EMF protection. In some Member States, Ministries other than the Ministries of Health may show interest, such as the Ministry of Environment, Energy (dealing with electricity applications), Telecommunications (e.g. wireless networks), Transport (radar equipment for air navigation) or Industry.

Oversight of the Project is provided by an International Advisory Committee (IAC). The IAC is composed of members of international organizations, WHO collaborating centres, and national authorities from all regions of the world. 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 oversight on the conduct of the Project: review outputs of the Project, including scientific information related to public and occupational health, and management of the EMF issue
- to provide a forum for peer discussion on dealing with the health concerns raised by exposure to EMF fields.

Over the last 20 years, activities have closely followed the original work plan, and most activities have or are being implemented. The WHO Department of Public Health, Environmental and Social Determinants of Health 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 details below). It also cooperates in an *ad hoc* manner with other institutions (e.g. co-sponsoring of meetings) and with individual experts.

International organizations

A number of international agencies are involved in the Project. Over the reporting period, there has been active collaboration with several of them.

The **Agency for Research on Cancer (IARC)**, a specialized agency of WHO, based in Lyon, France, has strong links with the International EMF Project. Its 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 Agency is involved in both epidemiological and laboratory research and disseminates scientific information through publications, meetings, courses, and fellowships.

Over the last year, the Section of Environment and Radiation (ENV) has published several papers on electromagnetic fields. Dr Schüz, head of the ENV section, is participating in the Steering Group for the development of the Environmental Health Criteria monograph on radiofrequency fields. He gave a lunch time seminar on the work of his section at WHO headquarters on 5 February 2016.

In the reporting period, IARC has published a Supplement Issue in *Cancer Epidemiology* providing the scientific evidence for the [4th edition of the “European Code against Cancer”](#) with the participation of the European Commission. Based on the best available scientific evidence, the new Code provides 12 ways to adopt healthier lifestyles and boost cancer prevention across Europe. It includes two topics related to radiation, i.e. radon and ultraviolet radiation. Regarding EMF, “it is not an

established cause of cancer and is therefore not addressed by a recommendation of the Code”.

The **International Labour Office (ILO)**, a UN agency in Geneva, works closely with WHO in the area of occupational exposure to radiation, both ionizing and non-ionizing through Dr Shengli Niu from the Programme on Safety and Health at Work and the Environment (SafeWork). Over the past year, ILO has contributed to the discussions regarding the development of the Environmental Health Criteria monograph on radiofrequency fields and is a member of the Core Group for the development of non-ionizing radiation standards.

The **International Telecommunications Union (ITU)** is the leading UN agency for information and communication technology issues, and the global focal point for governments and the private sector in developing networks and services. All three of its sectors have been involved with the WHO EMF Project through the Telecommunication Standardization Sector (ITU-T) Study Group 5 - Protection from Electromagnetic Environment Effects, the Radiocommunication sector (ITU-R), and the Telecommunication Development Sector (ITU-D).

ITU-T has provided very useful feedback to the EHC RF monograph and to the Fundamental Safety Principles document. Over the past year, WHO was invited to give a keynote address at ITU-T workshop organized in Kuala Lumpur, Malaysia (April 2016). WHO also participated in a meeting of the follow-up ITU-D Question 7/2 (Strategies and policies concerning human exposure to electromagnetic fields) in April 2016 for the 2014-2018 study period.

Over the last year, WHO was kept abreast of the work of Working Party on Electromagnetic Fields at 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, and in particular the EC Directive 2004/40/EC. The Non-binding guide to good practice for implementing Directive 2013/35/EU ‘Electromagnetic Fields’ will be a useful tool for the EC countries as well as other Member States. It will also provide useful input to the work of the Basic Safety Standards on Non-Ionizing Radiation.

The European Commission and the Scientific Committee on Emerging Newly Identified Health Risks (SCENIHR) has finalized its opinion on 'Potential health effects of exposure to electromagnetic fields (EMF)' which was published in March 2015 but formally adopted in January 2015, following a public consultation in Spring 2014 (http://ec.europa.eu/health/scientific_committees/emerging/docs/scenihr_o_041.pdf). Close communication is maintained with the **European Commission Directorate-General for Health and Food Safety (DG SANTÉ)**, and a courtesy was arranged in August 2015 in Luxembourg.

WHO also follows with interest the EMF research projects funded by the **Directorate General for Research and Innovation (DG Research)** based in Brussels.

Active collaboration is ongoing with the **International Commission on Non-Ionizing**

Radiation Protection (ICNIRP) - an NGO in *official relations* with WHO (for more information on this status, see <http://www.who.int/civilsociety/>). This status is conferred for a 3-year period (Jan 2015-18).

A joint ICNIRP/WHO workshop on “A closer look at the thresholds of thermal damage” was held in Istanbul, Turkey in May 2015. WHO was also invited to present at ICNIRP’s 8th International NIR Workshop in conjunction with the IRPA14 Congress, held in Cape Town, 9-12 May 2016. WHO was invited to attend the ICNIRP Main Commission meetings and Project Groups on high frequency guidelines, diagnostics and ultrasound, as an observer in Rome, Italy (March 2016) and in Cape Town (May 2016).

WHO and ICNIRP are now engaging more particularly on the topic of NIR and patient safety. A side event “Imaging for Saving Kids - the Inside Story About Patient Safety in Paediatric Radiology”, jointly co-organized by Uganda, Spain, Kenya and Malaysia, was held at the WHA68 on 26 May 2015. This event was co-organized by 9 NGOs in official relations with WHO, including ICNIRP.

The following other NGOs in official relations with WHO have been in communications with the WHO International EMF Project over the last year on the topic of non-ionizing radiation:

- the International Commission on Occupational Health (ICOH),
- the World Federation for Ultrasound in Medicine and Biology (WFUMB),
- the International Organization for Medical Physics (IOMP);
- the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA), in short the “World Organization of Family Doctors”;
- the International Radiation Protection Association (IRPA) – *in process of designation*.

Collaboration was maintained with NATO, URSI, the Global Coordination of Research and Health Policy on RF Electromagnetic Fields (GLORE) and with other international NGOs developing exposure assessment standards,

- the International Committee on Electromagnetic Safety (ICES) operating under the rules and oversight of the IEEE Standards Association Standards Board;
- the International Electrotechnical Commission (IEC).

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 for a period of 4 years and annual reporting of joint activities.

The EMF Project works with the following scientific institutions which have been formally recognized as collaborating centers of WHO in the area of ionizing and non-

ionizing radiation:

- **Swiss Federal Office of Public Health (Switzerland)** – March 2014-18: A bilateral meeting was held in Bern in April 2016 to discuss activities in the work plan.
- **Australian Radiation and Nuclear Safety Agency, ARPANSA (Australia)** – June 2012-16: Close cooperation has been maintained on the development of communication products and on the Non-Ionizing Radiation Basic Safety Standards project (currently under redesignation)
- **Institut für Strahlenhygiene, Bundesamt für Strahlenschutz, BfS (Germany)** – Jan 2014-18: Close cooperation has been maintained on the development of communication products and on the Non-Ionizing Radiation Basic Safety Standards project. A bilateral meeting was held in Geneva in May 2016 to discuss activities in the work plan.
- **Public Health England (PHE)** – May 2016-20: The designation of PHE was finalized in May 2016. Close cooperation has been maintained on the development of the Radiofrequency fields EHC and on the Non-Ionizing Radiation Basic Safety Standards project.

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 within the Department of Public Health, Environmental and Social Determinants of Health (PHE) in the Cluster of Family, Women's and Children's Health (FWC) Cluster.

The priorities, strategic objectives and expected results of the Organization are delineated in the Twelfth General Programme of Work (2014-2019). In addition, more specific short-term programmatic outputs are described in two-year work plans. The current reporting biennium spans 2016-2017. The broad lines of work for PHE within the current biennium are described below.

<i>Programme</i>	<i>Health and the environment</i>
<i>Outcome</i>	<i>Reduced environmental threats to health</i>
3.5.1. Output	Country capacity strengthened to assess health risks, develop and implement policies, strategies or regulations for the prevention, mitigation and management of the health impacts of environmental risks
3.5.2. Output	Norms, standards and guidelines to define environmental and occupational health risks and benefits associated with air quality, chemicals, water and sanitation, radiation, nanotechnologies, and climate change
3.5.3. Output	Public health issues incorporated in multilateral agreements and conventions on the environment and sustainable development

In particular, EMF activities are broadly described in the work plan as follows:

3.5.1.H1-19.1	Develop and disseminate information materials on risk management policies of electromagnetic fields
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3.5.1.H1-19.4	Provide technical support to national authorities and international organizations regarding non-ionizing radiation
3.5.2.H1-22.1	Develop international standards for protection against non-ionizing radiation

The Secretariat of the WHO International EMF Project facilitates all activities of the Project and provides regular reports to the International Advisory Committee and contributors to the Project. It organizes and conducts review group meetings, prepares and publishes reports and brochures, organizes the preparation and publication of monographs and scientific reports, and liaises with consultants, collaborating agencies and key institutions to prepare material as required. The focal points in WHO Regional Offices participate where possible and facilitate communications with countries in their respective regions.

A key challenge has been and remains to ensure alignment between activities planned and the resources mobilized, both human and financial.

Personnel

Dr van Deventer is the Team Leader of the Radiation (RAD) programme, with managerial responsibility for both the Ionizing and Non-Ionizing Radiation programmes. Further she has technical responsibility for the International Radon Project, the WHO EMF Project and the INTERSUN UV Programme.

The EMF Project continues to encourage Member States to promote direct involvement of their staff in the work of the International EMF Project through different means, including secondment. Other mechanisms are available through [Junior Professional Officer \(JPO\) program](#)¹ or through the [WHO 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.

Funding

WHO receives its funding principally through assessed contributions from Member States and voluntary contributions. All contributions and accounting are audited by WHO. For any contribution, 13% of expenditure is usually deducted by WHO to cover administrative costs related to administering the funds, in accordance with World Health Assembly Resolution WHA 34.17.

The technical Unit may follow up on any funding interest from the part of Ministries of Health, or other governmental bodies. The EMF Project is currently solely funded through voluntary contributions from participating countries. For amounts under US\$ 50 000, a standard Letter of Agreement of Contribution (LAC) is sufficient if the donor is simply making a contribution to support existing unspecified activities,

¹ 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 donor governments sponsor JPOs for WHO: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Japan, Korea, Luxembourg, The Netherlands, Norway, Spain, Sweden and Switzerland.

provided however that no conditions are attached to the contribution. Unspecified contributions provide WHO with greater management flexibility and do not need to issue a certified financial statement.

Over the years, several governments have given direct contributions to the WHO EMF Project, either on a periodic or ad-hoc basis. For the period May 2015 to June 2016, the following governmental entities have provided funding to the WHO International EMF Project:

- Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), Australia
- Ministry of Environment, Israel
- Ministry of Health, New Zealand
- Federal Office of Public Health, Switzerland

Some countries provide financial support for specific earmarked activities within the Project. Other countries provide in-kind contributions in the form of staff time. This is the case of the Health Council of the Netherlands and the UK Public Health England for the Environmental Health Criteria on RF, the New Zealand Ministry of Health for the brochure on RF for Local Authorities, and currently the German Federal Office of Radiation Protection (BfS), the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the Icelandic Radiation Safety Authority and the Greek Atomic Energy Commission for the Non-Ionizing Radiation Basic Safety Standards.

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](#). Since 1981, WHO has addressed possible health effects from exposure to EMF through six monographs dedicated to various parts of the EMF frequency spectrum (http://www.who.int/peh-emf/research/health_risk_assess/en/index2.html).

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.

EHC on Radiofrequency fields

Following on the publication of the INTERPHONE study (May 2010) and the IARC classification of RF fields (May 2011), the health risk assessment of radiofrequency fields by WHO was started with a kick-off meeting in January 2012. A core group of 6 experts has been gathered to help with the development of the monograph. They, in turn, have enlisted the help of close to 30 experts to develop different sections of the first draft. Monthly conference calls have been held over the past year. A face-to-face meeting was convened in Istanbul in May 2015.

A number of systematic reviews have been performed based on published peer-reviewed data. Search strategies, inclusion/exclusion criteria and quality criteria have been developed for the different types of studies. A first draft was uploaded on the WHO website in the Fall of 2014. Over 90 entries were filed electronically through the consultation providing around 700 comments to different chapters and section of the draft. Over 300 missing papers were identified through this useful step. Each submission has been carefully considered by the Core Group and the draft has been revised to take account of relevant comments and of papers published since December 2012. As a result of the consultation, a new chapter on biochemical and biological effects was added.

The drawing of conclusions from the literature and the drafting of these chapters is the remit of a formal Task Group that will be convened by WHO following due process. The meeting of the Task Group is currently slated to be held in the Fall of 2016.

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

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>).

Given the need for some countries to develop or update their power grid, there is renewed interest in research on health effects related to exposure to ELF fields. A discussion is scheduled at the next International Advisory Committee regarding the need for an update of the research agenda on extremely low frequency fields. For radiofrequency fields, the latest EMF Research Agenda was published in 2010 (http://whqlibdoc.who.int/publications/2010/9789241599948_eng.pdf). The upcoming RF EHC monograph will provide an update of research priorities.

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 is an observer on the Swedish independent expert group on EMF, commissioned by the Swedish Radiation Safety Authority for a second 3-year term from May 2013.

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. INTERNATIONAL STANDARDS FOR NON-IONIZING RADIATION PROTECTION

The development of non-ionizing safety standards has been proposed by a Member State using the example of the [IAEA International Ionizing radiation Basic Safety Standards](#) (BSS) developed as a collaborative approach between 8 international organizations (EC, FAO, IAEA, ILO, NEA, PAHO, UNEP and WHO). The request reflects the fact that Member states are increasingly interested in clear guidance based on

harmonized standards and their application within a national framework of protection.

The scope of the Non-Ionizing Radiation Basic Safety Standards (NIR BSS) includes the whole non-ionizing radiation spectrum, i.e. electromagnetic radiation (from static field to optical radiation), as well as acoustic radiation (ultrasound and infrasound), with the aim of protecting health. These would be voluntary standards.

This topic was first brought for discussion at the 18th IAC meeting (Paris, June 2013) where it was proposed to parallel the Ionizing Radiation (IR) approach and develop Basic Safety Standards (BSS) for NIR, with WHO taking the lead role. Following the show of support from Member States, WHO held bilateral meetings with relevant UN agencies and organised a consultancy meeting in June 2014. Participants included representatives from international organisations, NIR experts and relevant NGOs. The meeting agenda covered issues regarding the need for NIR standards, their content, the roles of various stakeholders and how NIR standards would be developed and supported. The consultancy meeting developed a project outline, including ideas on how the standards would be developed, what outcomes were expected, and how the work might be funded.

As a next step, a small working group was set up to develop a more detailed proposal and evaluate funding needs. The group composed of 8 members representing different areas of expertise (EMF, optical, ultrasound and infrasound, and ionizing radiation), has been working via email, teleconferences and two face-to-face meetings in Chilton, UK (February 2016) and Brussels, Belgium (May 2016). It was decided to start with the [IAEA Fundamental Safety Principles](#), IAEA Safety Standards Series No. SF-1, IAEA, Vienna, (2006)

A first draft of a text on “Fundamental Safety Principles for Non-Ionizing Radiation” has been developed, which is meant to provide a common safety philosophy across all areas of applications of non-ionizing radiation. This draft has been sent to the IAC for review, and is tabled for discussion at the 21st IAC meeting.

An effort was made to describe this new activity through discussions at scientific meetings (French Society of Radioprotection, Reims, June 2015; IRPA Congress, Cape Town, May 2016), and with national authorities (Nordic countries, Helsinki, November 2015).

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 has developed a survey in 2013 to gather national information on legislation related to frequency ranges (static, low frequencies and radio frequencies) and to populations (public, workers). The survey was sent to all IAC members in 2013 and again in 2014. To date, 38 countries have provided data. The first set of information on EMF legislation has been uploaded on the [WHO Global Health Observatory](#) website, a dedicated portal providing access to data and

analyses for monitoring the global health situation. The data tables and related maps and text on EMF legislation (existence of standards) are published at <http://www.who.int/gho/phe/emf/legislation/en>.

Much work has been done over the past year with Dr Kandel through WebEx sessions and face-to-face meetings to review and revise the exposure limit values at specific frequencies within each range (static, 50/60 Hz, 900 MHz, 1800 MHz) to allow easy comparison of different standards. Also data on the legal status of regulations, together with name, date of publication and web links to the various legislations has been assembled. A collated document has been sent for review to the Member States. Because of the impending transposition of the EMF Directive 2013/35/EU on the minimum health and safety requirements for workers exposed to EMF by 1 July 2016, several countries are in the last steps of finalizing their legislation. Therefore occupational data will be gathered in July for upload on the GHO platform.

Further national information is being collated in the form of country profiles. A couple of volunteers have agreed to help with this endeavor. This topic is tabled for discussion at the 21st IAC meeting in June 2016.

3. 3. LOCAL AUTHORITIES BROCHURE

To help municipalities, a brochure on Wireless Networks has been developed to provide local authorities with basic information on wireless networks and health for the purpose of installation of mobile phone base stations and responding to public enquiries. Colleagues from New Zealand, Peru and Slovenia were involved in the review of the document. Some pilot sites have been chosen on different continents to pilot the brochure.

3. 4. COUNTRY SUPPORT

Several countries have requested WHO's help over the past year regarding the development of their legislation. This includes Burkina Faso, Eastern Caribbean (including Grenada, St. Vincent and the Grenadines, Saint Lucia, Commonwealth of Dominica and St. Kitts and Nevis), Sudan and Zimbabwe. WHO hosted a Singaporean delegation from the National Environmental Agency and Ministry of Health.

4. RISK COMMUNICATION ACTIVITIES AND RESOURCES

4. 1. ENQUIRIES

A number of enquiries are sent to the EMF Project from governments, the media and the general public. 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

EMF Home page

The web pages of the Radiation Programmes are undergoing a restructuring to align with WHO new web design. Both the WHO ionizing and UV websites are being updated.

National contacts and information

Because many enquiries to the EMF Project are of a local nature, 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/>) who provide annually updated information for their respective pages; this has proved to be a very useful tool worldwide. A new page has been added for Burkina Faso.

EMF_PROTECTION listserv

The WHO International EMF Project launched an EMF_PROTECTION listserv to enable a free flow of information to support the efforts of Member States working to EMF radiation protection. Topic areas for the listserv communications include any EMF-related health research or resources, legislation, policies and upcoming meetings. The target audience is members of the International Advisory Committee of the WHO EMF project. To date, 68 participants from 33 countries have enlisted to join the discussion group and to post relevant and timely information. Its success is dependent upon the contribution of its members.

4. 3. 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/>.

Translations

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- *This is a non-exclusive permission to translate and reproduce a specific item(s).*
- *The Translation shall be faithful to the original English text and rendered into good literary and scientific language.*
- *The material should not be translated and reproduced for use in association with commercial nor promotional activities.*
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Information about the translation of WHO health information products by external entities can be found at

<http://www.who.int/about/licensing/translations/en/index.html>. A link at the bottom of the page is the online form to be submitted http://www.who.int/about/licensing/translation_form/en/index.html.

Since the Project's inception, translations have been 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. In 2015, the WHO handbook on Establishing a Dialogue on Risks has been translated in Korean by the Korean Institute Electromagnetic Engineering and Science (the web link is available at: http://apps.who.int/iris/bitstream/10665/42543/84/9241545712_kor.pdf?ua=1). The fact sheet on mobile phones (updated in 2014) has been translated into German by the BfS, WHO Collaborating Centre (http://www.who.int/peh-emf/publications/facts/FS193_German_Aug2015.pdf?ua=1).

Fact sheets

Simple, easy to read information is provided through fact sheets that are formally approved by the Director General's Office. The latest 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/>). Previous fact sheets can be found on the EMF Project website. (<http://www.who.int/peh-emf/publications/facts/factsheets/en/index.html>). Three fact sheets are being reviewed and revised and will be uploaded after final review by the IAC and pending WHO clearances. These include:

- Fact sheet N°193 on Electromagnetic fields and public health: mobile phones, reviewed October 2014
- Backgrounder (previously Fact sheet N°304) on Base stations and wireless networks (May 2006)
- Backgrounder (previously Fact sheet N°322) on Exposure to extremely low frequency fields (June 2007)

4. 4. MEETINGS

WHO staff (Dr van Deventer) participated in a number of local, national and regional scientific and coordination meetings during the reporting period:

When	Where	Title
May 7-8, 2014	Berlin, GERMANY	Swedish Radiation Safety Authority (SSM) biannual meeting
May 26-28, 2015	Istanbul, TURKEY	ICNIRP/WHO workshop on "A closer look at the thresholds of thermal damage"
June 16-18, 2016	Reims, FRANCE	French National Congress on Radioprotection
July 20, 2015	Geneva, SWITZERLAND	Visit of Singaporean delegation from the National Environmental Agency and Ministry of Health
August 27, 2015	Luxembourg, LUXEMBOURG	Courtesy visit to the EC DG Santé
November 3-4, 2015	Helsinki, FINLAND	Nordic Meeting on Non-ionizing

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		Radiation
November 16-17, 2015	Utrecht, NETHERLANDS	Swedish Radiation Safety Authority (SSM) biannual meeting
November 19-20, 2015	Seoul, SOUTH KOREA	Global Coordination of Research and Health Policy on RF Electromagnetic Fields (GLORE) meeting
December 17-19, 2015	Bangkok, THAILAND	Symposium on Radiofrequency Electromagnetic Fields and Human Health
February 2-4, 2016	Chilton, UNITED KINGDOM	Face-to-face meeting of the Core Group of experts for the on the Development of International Standards for Non-Ionizing Radiation
March 21-25, 2016	Rome, ITALY	International Commission on Non-Ionizing Radiation Protection Annual Main Committee meeting and Project Group on High Frequency Fields
April 12, 2016	Luxembourg, LUXEMBOURG	Courtesy visit to the Ministry of Health
April 13, 2016	Bern, SWITZERLAND	Bilateral meeting with Swiss Federal Office of Public Health
April 20, 2016	Brussels, BELGIUM	Visit to the Belgian Federal Public Service of Health, Food Chain Safety and Environment
April 21, 2016	Kuala Lumpur, MALAYSIA	11th ITU Symposium on ICT, Environment and Climate Change, (<i>remote participation</i>)
April 22, 2016	Geneva, SWITZERLAND	ITU-D Q7/2 Rapporteur Group meeting
May 3, 2016	Geneva, SWITZERLAND	Bilateral meeting with German Federal Office of Radiation Protection
May 7-13, 2016	Cape Town, SOUTH AFRICA	8th ICNIRP International NIR Workshop and 14th International Congress of the International Radiation Protection Association
May 18-19, 2016	Stockholm, SWEDEN	Swedish Radiation Safety Authority (SSM) biannual meeting
May 31, 2016	Brussels, BELGIUM	WHO Core Group meeting on the Development of International Standards for Non-Ionizing Radiation
June 2-3, 2016	Brussels, BELGIUM	21 st International Advisory Committee of the EMF Project

FOR FURTHER INFORMATION ON THE INTERNATIONAL EMF PROJECT

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