

French Agency for Food, Environmental and Occupational Health and Safety (ANSES),
27-31 avenue du Général Leclerc - 94701 Maisons-Alfort, France
Thursday 6 - Friday 7 June 2013

Rapporteur – Martin Gledhill, representative of the Ministry of Health of New Zealand

Thursday 6 June

Opening of the meeting

Emilie van Deventer welcomed the participants and opened the meeting.

Election of Chair and Vice-Chair

Lindsay Martin (ARPANSA - Australia) and Simon Mann (PHE - UK) were elected chair and vice chair respectively. Lindsay Martin took the Chair and delegates introduced themselves. The proposed agenda was adopted. The draft minutes of the 2012 IAC meeting were adopted with two corrections: under “National EMF legislation and policy issues”, Tunisia had received 200 claims of EMF health effects, not 200; and Lindsay Martin corrected the wording about the ELF Standard in the ARPANSA collaborating centre report.

Update on the International EMF Project

Emilie van Deventer spoke to her report and gave an overview of WHO’s roles and functions. Over 60 countries are now involved in the EMF Project. Ten new countries had been contacted, and several were attending the IAC for the first time.

ARPANSA and BfS are active WHO collaborating centres for the EMF Project, the radiation protection division of PHE is under designation and ANSES is under discussion.

The Project is entirely funded by extra-budgetary contributions (all of which are audited by WHO). Seven countries have made financial contributions in the past year, and other national institutions have provided in-kind contributions. Funding is currently sufficient to keep the Project going until spring 2014.

A core group is currently developing the first draft of the RF Health Risk Assessment. Priorities in the recently published RF research agenda are still being taken up, as are the policy documents. The guide for local authorities is still in progress. WHO is now stricter on what can be published as a Fact Sheet, and some have been converted into “backgrounders”.

Review of recent research on EMF***Laboratory studies (B. Veyret)***

Bernard Veyret provided an overview of recent work across the electromagnetic spectrum (commenting that he collects three new papers per day, so cannot hope to provide comprehensive coverage in the time available), and advised IAC members to refer also to recent

national reviews of the RF research literature, such as those published by the HPA (now Public Health England) and SSM (Swedish Scientific Council on EMF).

The main focus for work on static fields is on the effects of movement. In the ELF area most recent studies are related to the childhood leukaemia question. Any positive findings have generally been found at field levels greater than 1 mT. The RF region still receives most of the EMF research funding, but to date there are still no well-established “non-thermal” effects. A large animal study funded by NIEHS in the USA is still in progress. A decrease in funding is probably leading to a decrease in the quality of research. There is still a need for better coordination of laboratory research programmes worldwide, with too many end points and exposure conditions being investigated.

Epidemiology (M. Feychting)

Maria Feychting summarised findings from recent epidemiology studies. She too referred IAC members to the recent HPA and SSM reviews, and one from the Health Council of the Netherlands.

ELF: Recent ELF studies provide no definitive answers on the childhood leukemia question. A series of papers from a group in California covering asthma, miscarriage and obesity, which report positive findings, all use different exposure metrics and should be interpreted cautiously.

RF: There have been further studies on brain tumour incidence in mobile phone users, but in response to a question Maria gave her opinion that results published since the IARC review in 2011, and incidence trends, speak against an association. Recent papers on cancer incidence in the vicinity of base stations suffer from a number of weaknesses which limit their value. Further research on effects in children of maternal mobile phone use provides no clear evidence of any effects.

Reports from international organizations and NGOs

International Agency for Research on Cancer (IARC), France (J. Schuz) - IARC has been involved in the ARIMMORA project, the UK Million Women study, a paper on ELF fields and childhood leukaemia survival, and a pilot of the COSMOS study in France.

International Telecommunications Union (ITU), Switzerland (Istvan Boszocki) – Various ITU Resolutions have instructed ITU to collect and disseminate information on RF exposures, and ITU has a work plan in this area. The 2011 ITU-R handbook on spectrum monitoring covers measurement techniques. Responding to the needs of developing countries, especially with regard to the deployment of mobile networks, is a priority. WP2 of ITU-T SG5 also covers health effects of electromagnetic fields. ITU maintains a close collaboration with WHO.

European Commission (EC), DG SANCO, Luxembourg (D. Meroni) – Most recent work has covered risk assessment, and risk communication including a workshop in February 2013. The SCENIHR opinion on EMF will be updated towards the end of 2013, and publication of the draft will be followed by public hearings. The 1999 EU EMF recommendation will then be reconsidered.

European Commission (EC), DG EMPLOYMENT, Luxembourg (Z. Podniece) – The amended EMF Directive should be adopted in early July 2013. It will cover direct and indirect effects. There was insufficient evidence to provide limits for long term effects. The Directive will include derogations for MRI, military activities and some industrial activities. A non-binding

guide to good practice will be prepared to assist with implementation.

European Commission (EC), DG RESEARCH AND INNOVATION, Belgium (T. Karjalainen)
– EMF risk research spending will peak in 2013 and then reduce. Around €35 million is allocated amongst the various research programmes.

International Electrotechnical Commission (IEC) TC 106 (J. Keshvari) – Maintenance work is in hand on several EMF exposure Standards. Harmonisation and avoiding duplication of effort, between CENELEC, IEEE and ITU is encouraged where possible.

International Commission on Non-Ionizing Radiation Protection (ICNIRP) (R. Matthes) – ICNIRP has developed new working procedures, with scientific expert groups feeding into Project Groups. The current work plan includes health risk assessments for RF, optical radiation and ultrasound, NIR protection in medicine and a workshop on general concepts of radiation protection.

International Committee on Electromagnetic Safety (ICES) (J. Keshvari) – IEEE/ICES has been developing an RF safety Standard for NATO. Contact currents are of particular interest, due to the potential for severe burns and the fact that the existing limits would prevent access to entire decks. The Standard will be formulated in terms of zones, with some staff specially trained to reduce the risks from contact currents in high risk zones. A revision of C95.7 on RF Safety Programmes is in advanced draft.

Update on WHO activities

Environmental Health Criteria monograph on Radiofrequency fields (E. van Rongen)

A first draft is in preparation, which will be published on the WHO website for public consultation. Based on comments received, a second draft will be prepared for the Task Group (whose composition will meet strict WHO rules). The role of the Task Group will be to review the current literature, assess risks to health, and draw final conclusions and recommendations.

The International Stakeholder Seminar held on the previous day (5 June) was attended by a number of IAC members. Feedback was very positive regarding the design and facilitation as it provided opportunity for all to actively participate in discussions. The discussion included the following comments:

- Unfortunately in one of the 3 breakout discussion sessions, one stakeholder group kept raising the same issue.
- How will the many comments be selected for consideration? Response: While only a synopsis of the topics was covered in the rapporteur sessions, all comments on post-it notes will be considered. Two students will be analysing the feedback, and the comments will be integrated into a background report for the EHC.
- At this stage, it is not expected that the Policy chapter of the EHC will give advice on policy, but rather present a number of management options based on national policies.
- There was no validation of the answers received to the questionnaire sent out before the workshop – some countries found it difficult to respond to some questions. (Note: at the close of the meeting Emilie asked representatives to review the background paper distributed before the workshop and check the data there.)

EMF Policy database (S.Kandel)

A questionnaire on national regulations and in particular on exposure limits at specific

frequencies (static, ELF 50/60 Hz and RF) for both public and occupational, and their legal status was sent out before the meeting, and 27 responses have been received. Once all responses have been received, they will be added to a new section of the WHO Global Health Observatory.

Discussion included the following matters:

- While the questionnaire covers very specific questions and frequencies, there is flexibility in the GH0 database to include additional material and explanations if necessary.
- There is some overlap between this work and the questionnaire distributed for the EHC policy chapter, but the data acquired for each is slightly different.
- Attempting to simplify the questionnaire by asking if national limits are based on ICNIRP may result in ambiguous answers, as they may be based on ICNIRP but only one tenth of them.

Brochure for local authorities (M. Gledhill)

An updated draft was distributed before the IAC, and the meeting felt that it was satisfactory and should be published soon. IAC members were given a final opportunity to submit feedback on major items only. Appendices giving national limits were not needed, as this information would be on the WHO website. Some user validation is needed.

IAC members were not in favour of joint publication with the ITU as it was felt that ITU could be seen as too closely aligned with the telecommunications industry, and this might detract from the brochure's acceptance.

Fact sheets (E. van Deventer)

Emilie opened a discussion on the future of EMF Project Fact Sheets, some of which are on the WHO Media Centre website and others in the EMF Project section. Four have become Backgrounders in the EMF Project section. There is a new WHO template for Fact Sheets, which restricts them to three pages.

There was extensive discussion on the pros and cons of having a large number of Fact Sheets to cover individual RF sources (eg separate Fact Sheets for mobile phones and base stations) or whether there should just be a few covering broad topics. Points raised in favour of having few Fact Sheets included:

- Too many Fact sheets might confuse the public, all RF should be covered in 3 pages
- The IARC classification covered all RF, a Fact Sheet should do the same.
- One Fact Sheet could have separate sections covering different sub-topics
- One national authority has published an information sheet covering most household items, and it has been well received.

Points raised in favour of a range of Fact Sheets included:

- There should be separate Fact Sheets for mobile phones and base stations, as exposures to phones are voluntary whereas base station exposures are involuntary. There are differences in exposure patterns and use.
- Queries tend to be prompted by events, so it is better to have individual Fact Sheets covering event-driven topics rather than one broad Fact Sheet which might confuse.
- A Nordic statement covering all RF exposures is in preparation and proving very difficult to write.

- Two Fact Sheets for mobile telephony would be good. To make a parallel with malaria, there is one vector and one Fact Sheet. Mobile telephony has two vectors (phones and base stations) and there should be a Fact Sheet for both.
- Fact Sheets should be informative, and so topics should be separated.

Other points raised included:

- An updated Fact Sheet on ELF fields would be valuable.
- The EMF Project information on static fields and EHS can stay as backgrounders.

Review of recent national and regional EMF policies

Case study of Brussels: Sharing the experience (C. de Grave and C. Knechciak)

Charlotte de Grave and Cecile Knechciak described the implementation of the law in Brussels which restricts exposures from wireless networks to 3 V/m. (TV and radio transmitters are not covered). The system is based on environmental permits, and each operator is allocated a percentage of the total. Compliance is determined using calculations through software, backed up by measurements using a well-defined protocol. It is the operators' responsibility to comply (and this imposes a heavy workload on them): the Brussels administration checks compliance.

In response to questions, Charlotte and Cecile commented that the decision not to consider TV and radio transmitters was political, but that exposures were not expected to be high due to the height of transmission towers. The exposure prediction software has been validated against measurements, but there is no account taken of uncertainty. If confirmation measurements are made, these are taken in the area where the highest exposures are predicted, at a height of 1.5 m.

Developments in the different regions of the world

Discussion moved on to cover developments in other parts of the world. Points raised included:

- It would be helpful for large European cities to talk about the best way to set exposure limits or targets.
- Politically chosen limits hurt – they suggest that money spent researching the science have been wasted.
- If exposures can be reduced without causing problems, why not do so? There may be psychological benefits for some people.
- A statement from WHO about “sensitive areas” would be helpful.
- Bulgaria is preparing an ordinance covering the whole EMF range, based on ICNIRP.
- In Greece, the chosen limits are arbitrary and were a political decision. The science is mistrusted. The best way to manage anxiety is through measurements.
- Nigeria is preparing legislation which sets limits based on ICNIRP.
- In Brazil, the law requires following WHO recommendations, and defers to ICNIRP. As WHO is trusted, this helps settle disputes.
- Israel will be conducting public hearings on the introduction of 4G. A recommendation for an ELF limit of 0.4 μ T has been made.
- A Norwegian expert group considered that RF risks are very low, and they require only that exposures should be as low as practically achievable. Limits should be evidence-based.
- Sweden has developed a mobile RF mapping system. Over one 18 km traverse around a town exposures were mostly between 0.1 and 10 mW/m². In urban areas base stations are the greatest contributors to exposure.

- Finland is taking a long term approach by providing scientifically sound information on EMF in school and university.
- Germany found that having exposure data allowed for objective discussions following the introduction of 4G services.
- In India, EMF is a cause of high public concern. A committee has been directed to collect data looking at various health outcomes in a long term study. Usage data shows some people use their phones for 3650 hours per year, although it is not known how much of this may have been through data services.
- There was an initiative in the Swiss parliament to revise the precautionary limits. There have been 1.5 million page views of the Swiss FOPH fact sheets.
- Brussels reported that there have been approximately 10 violations of the exposure limits from mobile operators. India reported approximately 100 violations from some 730,000 base stations. Italy reported very little non-compliance, but that some sites could no longer expand as they were close to the precautionary limit.

Friday 7 June

Reports from collaborating centres

Federal Radiation Authority (BfS), Germany (*R. Matthes*) - Key issues on EMF for BfS are public concern, and research. Public concern is currently driven by the need for new transmission lines as nuclear power is winding down and new power sources have to be linked to the grid. The web pages on ELF fields have been revised and some material is available in English. The EMF Ordinance has been amended and is now based on ICNIRP, with a few minor changes. There is a requirement to minimise exposures.

Research is focussed on the childhood leukaemia question, and includes work on the etiology of childhood leukaemia, genome analyses, new animal models and epidemiological studies.

Public Health England (PHE), United Kingdom (*S. Mann*) - PHE has added new pages to its website on the SAGE process, providing advice based on science and showing people how they can reduce exposures. The website also has a new statement on Smart Meters. EHS is a common factor in complaints about Smart Meters, and responses draw on the HPA/AGNIR report published in 2012. PHE is carrying out exposure assessments for the MobiKids study, and also looking at ELF field exposures in the head from mobile phones.

The AGNIR is currently assessing optical radiation.

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), Australia (*L. Martin*) - ARPANSA is currently reviewing RF research published since 2000 to determine whether their RPS3 exposure Standard should be amended. The draft ELF document has been harmonised with ICNIRP 2010 and will be published as a Guideline, not a Standard. About 1,000 public queries are received per year, of which around 20% are now on Smart Meters. Many queries seem to be driven by media reports, confusion about measures in other countries and lack of awareness about relativity of exposures.

UV continues as an important area of activity. There is a national UV monitoring network, with a live UV Index available at 10 locations. An integrated UV dose in SEDs is being introduced.

Standards on sun protective clothing and shade cloth are being revised.

International Standards for NIR

Rüdiger Matthes (in his BfS role) introduced the topic by reviewing the history and achievements of the WHO EMF Project to date. It was established to support national authorities in developing their own EMF protection programmes. Through its work to date the science has been well covered, and meetings on Standards harmonisation and publications (framework for health-based Standards, and model legislation) have helped national authorities develop policy.

Exposure recommendations have been developed by several organisations such as ICNIRP and IEEE/ICES, and there is good harmonisation between these on fundamental limits. On the other hand, there are differences in the ELF area and for occupational exposures, and some groups such as the BioInitiative authors and the EMF Alliance have proposed radically different limits.

A proposed way forward would be to parallel the Ionising Radiation (IR) approach and develop the equivalent of Basic Safety Standards (BSS) for NIR, with WHO taking the lead role. Advantages of this approach would be the balance of science and policy, and the definition of a high level of protection for all. “Safety Standards” (SS) for NIR would support governments, and be useful for risk communication, the international labour market, the global roll-out of technology and litigation.

Emilie added that one member state had raised this matter for discussion. Such work fitted with WHO’s role, but would be a change from the current approach where WHO facilitates the development of NIR Standards by others. If WHO were to develop SS for NIR, this would need to be coordinated across all UN agencies with an interest in the area (ILO, ITU, UNEP ...) and include representatives from other interested parties (eg ICNIRP, IEC, CIE ...) as observers.

In the short term, there would need to be a task force to lay the ground work for the establishment of an Inter-Agency Committee on Non-Ionising Radiation Safety (IACNIRS). The IACNIRS would then develop a system of NIR protection and ethical and evidence-based Standards as a benchmark for member States. (While the process would be based on that used for IR, there are clear differences between IR and NIR so the protection principles would be different. The process used to develop drinking water Standards could also be used as a model.)

Comments from the IAC members were generally supportive of this idea, but a few cautions were expressed, including:

- The IR BSS are based on a few principles, and developing NIR principles may be more complex.
- For the public, NIR is a greater health concern than IR, so the approaches and concerns if individual countries should be considered.
- The political perspective may be important and should be considered carefully.

NIR in medicine and the cosmetic industry

Birgit Keller from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) outlined the wide range of applications of NIR in medicine and the cosmetic industry in Germany. Regulatory authorities there (and elsewhere) make a distinction between medical and cosmetic applications, with the latter often escaping any regulatory

oversight.

ICNIRP and WHO organised a workshop on NIR protection in Medicine in Bonn in December 2012 where these questions were discussed. The workshop concluded that science-based exposure limits were important in this area, and patient protection should be given more attention. User training is important, and the use of NIR in the cosmetic industry is a concern from both compliance and training viewpoints. It was felt that ICNIRP could issue more advice for clinicians.

The subsequent discussion highlighted concerns with unregulated cosmetic applications being provided by untrained staff. In France, ANSES has made a risk assessment and conducted a survey of equipment being used. A report will be published in 2014.

Administrative business

Emilie asked for participants for ideas on topics to be covered in future meetings. Lasers, educational approaches and issues arising from new energy sources were suggested.

It was reiterated that the EMF Project is entirely funded by contributions from governments, and means to provide support were suggested. In-kind contributions to share the work around are also helpful. WHO responds to requests to attend meetings where possible, but cannot accept all invitations. Regional meetings are given higher priority.

Emilie closed the meeting by thanking the Chair and Vice-chair, and thanked Olivier Merckel and ANSES for hosting the IAC meeting.
