Opinion of the International EMF Alliance (IEMFA)

On the need for Independent and Credible Environmental Assessment

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Dämvik M, Johansson O., *Health risk assessment of electromagnetic fields: a conflict between the precautionary principle and environmental medicine methodology.* Rev Environ Health. 2010 Oct-Dec;25 (4):325-33. www.ncbi.nlm.nih.gov/pubmed/21268445

ENCLOSURE II

Don Maisch, *Conflict of Interest & Bias in Health Advisory Committees: A case study of the WHO's EMF Task Group*, Journal of the Australasian College of Nutritional & Environmental Medicine - April 2006

Strasbourg, March 2011

Opinion of the International EMF Alliance (IEMFA) on the need for Independent and Credible Environmental Assessment

The IEMFA – aims and scope

The IEMFA is a young and growing umbrella organisation affiliating over 50 non governmental grassroots organisations from over 20 countries in five continents, advocating for a precautionary approach to electromagnetic pollution, relevant public information on prevention and risk, an adequate support to patients with electro-hypersensitivity syndrome (EHS), and an increased funding of independent research on EMF health effects. The IEMFA is supported by a growing body of independent scientific and medical experts on living processes, with a multilevel, multidisciplinary health focus.

The IEMFA aims to disseminate coherent information and advice to national and international health authorities and policy-makers on the rapidly growing evidence of actual and potential effects on health and wellbeing by non-ionizing electromagnetic fields (EMF). The IEMFA also addresses other stakeholders and individuals with an interest in the subject.

The IEMFA urges governments, health authorities and citizens to take precautionary measures, and proposes a new set of standards. The new guidelines for human exposure to EMF as presented in THE SELETUN RESOLUTION were published in *Review of Environmental Health* by a consortium of independent international scientists.[1] These significantly lower recommendations compared to today's situation are based on the latest body of evidence in biological sciences and on the potential public-health and environmental implications of the unprecedented global exposures to EMF. www.iemfa.org

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The IEMFA's rational public health vision challenges the present ICNIRP health protection guidelines, which are outdated and inadequate according to today's scientific and empirical evidence, but still supported by the World Health Organisation. We argue that the quasi-monopoly of the ICNIRP *"no risk interpretation"* on EMF is arbitrary and unsound, and suggest that corporate and military interest groups play a determinant role to maintain the situation. The IEMFA concludes that the situation in the EMF field is a relevant example of the obvious and urgent need for independent, pluralist and multidisciplinary expertise in environmental risk assessment and regulation.

[1] Fragopoulou, Grigoriev et al. *Scientific Panel on Electromagnetic Field Health Risks: Consensus Points, Recommendations, and Rationales*, REVIEWS ON ENVIRONMENTAL HEALTH VOLUME 25, No. 4, 2010

I. The IEMFA's general comments on
the need for independent and credible environmental assessment

Reliable and pluralist expert assessments are essential to assure rational decision making. Still, it is not uncommon that lawmakers, policymakers, citizens and NGOs question the independency and reliability of experts. Their doubts could be due to evidence or suspicion of bias, the existence of alternative paradigms or interpretations not being considered by the experts, or a discrepancy between the experts' thesis and the experience of the grassroots.

1. Scientific assessment in the decision making process

Scientific assessment is needed when a decision requires knowledge of a field which is not within the sphere of common knowledge. However, democratic decisions should not be based exclusively on instrumental knowledge without consulting other sources of information, particularly the experience and opinion of the citizens and their organisations.

Science is the result of a combined action of adequate theories, methods and facts.[2] Yet, studies and models can be designed to facilitate or avoid certain findings. It's important to assure that the design, the analysis and the conclusions are made by a truly independent and pluralistic scientific committee, representing all main scientific factions. The independency and reliability of experts is of special importance when the assessment can affect large economic industry interests. Policy makers have to consider that findings can vary when those commissioning, financing or carrying out the assessments have direct interests in the area.

Policy makers are the citizens' representatives in a democratic society, elected to make decisions for the common good. When policy makers don't have the time to study different angles of a topic, and blindly follow expert assessment or opinion, they capitulate to paternalism - one of democracy's main competitors. The ideals of human rights and democracy are based on the belief that human beings are capable of knowing their own best, and that each person is entitled to the same rights to participate in the government of his or her community. There is evidence that experts often are mistaken, and that a high degree of specialisation is a handicap in political decision-making. This is why policy-makers should consider specialist assessment as one guide among others; such as moral consideration, empiric experience and common sense.[3] Georges Clemenceau formulated this idea as follows: "*War is too important a matter to be left to the military*".[4]

It may seem comfortable to rely on experts and powerful partners in decision-making, and sometimes government representatives forget who they represent, and take position for the economic or intellectual elite incarnated by the experts. But when it comes to accountability, the decision-making body will stand alone as the one who effectively made the decision. (See page 12)

[2] Kuhn, The Structure of Scientific Revolutions, 1970
[3] This paragraph is inspired by Robert A. Dahl *Democracy and its critics,* Yale university press 1989
[4] http://en.wikiquote.org/wiki/Georges_Clemenceau

2. Position and credibility of the scientific expert

If the group of scientists performing the assessment doesn't belong to the commissioning decision making body, it can still be connected to other centres of power, like corporations. History gives us continuously examples of scientists who produce doubt or evidence in order to serve the interests of powerful companies. Lead, tobacco and asbestos are well-known domains where corporate scientists, lobbyists and spin doctors have succeeded to seize science and postpone regulation. These are only a few examples. A number of authors have described how "product defence specialists" proceed to elevate corporate controlled science to "sound science". Vital scientific evidence threatening the company's products will by the same logic be ignored, suppressed or distorted into "junk science". The market of influence is prospering, and a multitude of actors, including scientists, offer a vast range of science-bending and spinning techniques.[5]

There is also evidence that scientists can improve their career and funding perspectives by avoiding delicate topics, or by concentrating on complexity and doubt, useful to impede regulation. These scientists evolve in a grey zone between scientific dishonesty and integrity.[6]

There are various sources of bias spreading doubt on the accuracy of scientific assessment: methodological, intellectual and funding bias serving special economic or other interests. Governmental agencies and international bodies who want to identify or minimize bias elaborate extensive charts of conduct for experts, and opt for pluralist, pluri-disciplinary and transparent scientific committees. In France independent General Environmental Inspectors together with French NGOs have succeeded to change the composition of an expert group. The new balanced group proposed a precautionary approach and the necessity of independent experts where the old biased group did not.[7] The General Inspection system and the new expert group have lately been reorganised.[8]
Bias can also be neutralized by scientific and public debate, and an extended participation of the civil society.

"More needs to be done to ensure a fair representation of civil society organisations in expert groups".
EU Commissioner Barnier[9]

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[5] **Thomas O. McGarity, Wendy E. Wagner**, *Bending Science: How Special Interests Corrupt Public Health Research*, Harvard University Press (May 31, 2008) - **Rampton and Stauber**, *Trust us, we're the experts, how industry manipulates science and gamble with your future*. Tarcher/Putnam NY 2002 - **David Michaels**, *Doubt is their product: How industry's assault on science threatens your health*, OUP USA 1 mai 2008. - **Oreskes & Conway**, *Merchants of doubt, how a handful of scientists obscured the truth*. Bloomsbury press 2010.

[6] The example of Prof Adlkofer, Davis, Devra PhD, *Disconnect ch 6* p. 117f, Dutton, Penguin group USA 2010.

[7] AFSSET 2009 www.afsset.fr/upload/bibliotheque/403036549994877357223432245780/09_10_ED_Radiofrequences_Avis.pdf

[8] Evaluation des méthodes de travail scientifique de l'AFSSE DIEULEVEUX Thierry , ROUSSEAU Jacques , FRANCE. Inspection générale de l'environnement. Jan 2006
http://lesrapports.ladocumentationfrancaise.fr/BRP/064000700/0000.pdf
www.developpement-durable.gouv.fr/spip.php?page=article&id_article=14944

[9] Michel Barnier, in a letter to ALTER-EU, as quoted in ALTER-EU : *New Rules on expert groups*

This is an area with an important potential for improvement. The Alliance for Lobbying Transparency and Ethics Regulation in the EU (ALTER-EU) reports that the European Commission's revised *Horizontal rules on expert groups* "do not include any safeguards for corporate capture of expert groups", whereas there is evidence that more than 100 of the Commission's advisory groups are dominated by corporate interest. The European parliament has asked the Commission "to take action to ensure a balanced representation of interest groups in the membership of expert groups" in 2008[10]. ALTER-EU, Transparency international and other NGOs stress the need for "safeguards against industry lobbyists dominating expert groups".[11]

3. Expert assessment and the concept of risk

Risk assessment can be performed in a way so as to always or never confirm a risk. It depends on the definition of "risk". In order to become more comprehensive and credible, scientific assessment could include an indication of the degree of risk. Policy makers need this information in order to assure an adequate and balanced decision on regulation. There are examples where inaccurate risk assessment has been used to prevent an application of the precautionary principle.[12] See enclosure I

Expert assessment can be misused by decision-makers or lobby groups to serve particular interests or legitimate certain decisions. That's why it is of utmost importance that decisions are made on a pluralist, multidisciplinary basis, including the conclusions of different scientific factions, NGOs, as well as empiric observation and experience.

[10] Europan Parliament resolution of 19 February 2009 an transparency in financial matters.
[11] ALTER-EU : New Rules on expert groups fail to prevent capture by business lobbies - setback for transparency, 10 Jan 2010 www.alter-eu.org/documents/2011/01/10/statement-on-the-new-framework-on-expert-groups
[12] Dämvik M, Johansson O. *Health risk assessment of electromagnetic fields: a conflict between the precautionary principle and environmental medicine methodology*. Rev Environ Health. 2010 Oct-Dec; 25(4):325-33. http://www.ncbi.nlm.nih.gov/pubmed/21268445

II. The IEMFA's position on a specific case

Health effects of electromagnetic fields (EMF) - when inappropriate risk assessment prevents precaution

4. Health effects of EMF when inappropriate risk assessment prevents precaution

There are two main interpretations of today's scientific findings on potential and existing health effects of non-ionizing radiation: A growing number of scientists are concerned about the situation and the perspectives and recommend a prompt application of the precautionary principle.[13] Others find the evidence too weak to motivate any significant precautionary measures and state there are "no established risks".[14] This is *the ICNIRP interpretation.*

The scientific controversy and the consistent empiric evidence of adverse health effects from citizens and Medical professionals suggest a qualified precautionary approach.[15] A position defended by the European parliament among others.[16] Yet, the World Health Organisation and many other authorities have based their recommendations on *the ICNIRP interpretation*, which might appear incongruous in a time when the high costs of neglecting early warnings are well known.[17] [18] The lack of straightforward precautionary measures is even more difficult to understand considering the extensive implementation of wireless techniques and electric devices. Whole populations are today, whether they want it or not, exposed to earlier unequalled levels of electromagnetic radiation up to 24 hours a day in a giant experiment. This is also true for animals and plants. Even if the health effects turn out to be small, the damages might be considerable in this context, especially as some of the risks concern serious diseases like brain tumours. There are several explanations of this lack of coherence, some closely related to the lack of pluralist scientific assessment.

4.1. Risk assessment of "established health effects": When scientists supporting *the ICNIRP interpretation*, state there are *no risks*, it has to be emphasized that they only take "well established" health effects into account.[19] As effects are considered well established when the causality mechanisms are fully known, all research findings indicating a "risk concern" or

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[13] Examples: The Seletun and other resolutions www.iemfa.org The Venice and Benevento resolutions www.icems.eu. IEMFA, *position paper on the potential dangers of electromagnetic fields and their effects on the environment*, march 2011.

[14] Example: ICNIRP publications on EMF http://www.icnirp.de/PubEMF.htm

[15] Empiric evidence: See www.artac.fr www.feb.se and the IEMFAs position paper on *The potential dangers of electromagnetic fields and their effects on the environment.* Appeals from medical doctors: www.iemfa.org

[16] European Parliament resolution of 2 April 2009 on health concerns associated with EMF (2008/2211(INI))

[17] The WHO supports the *ICNIRP interpretation* based on "well established" effects, and does not consider *the precautionary interpretation* based on scientifically peer-reviewed risk evidence, or empiric evidence*: "The main conclusion from the WHO reviews is that EMF exposures below the limits recommended in the ICNIRP international guidelines do not appear to have any known consequence on health".* www.who.int/peh-emf/standards/en/index.html

[18] European Environment Agency, "*Late Lessons from early warnings: the precautionary principle, 1896-2000*" http://latelessons.ew.eea.europa.eu/

[19] *"It may be possible to identify adverse effects on human health related to NIR exposures that are judged to be well established. The existence of such established NIR effects forms the rationale for the ICNIRP exposure guidelines"* .ICNIRP, *GEN. APPROACH TO PROTECTION AGAINST NON-IONIZING RADIATION Approaches to risk management*, Health Physics April 2002, Vol 82, Number 4 p544 www.icnirp.de/documents/philosophy.pdf

even a "strong evidence of risk" will be disqualified as risk evidence. This mechanism allows the dominating scientific school to exclude competing interpretations from risk assessments, and to state a fictitious *no risk* consensus.

4.2. Preventing precaution. Since a risk criterion that is extremely difficult to attain has been established (fully understood causality), the present evidence of health risks can be ignored. Consequently it seems as though there is no uncertainty, a deceitful assumption that neutralizes the precautionary principle. Furthermore, the artificial *no risk* consensus hides the factual scientific controversy, which constitutes another main motive for precaution. This approach violates European Union (EU) law:

> *"Recourse to the precautionary principle presupposes that scientific evaluation does not allow the risk to be determined with sufficient certainty."* It is also stated that *"the degree of scientific uncertainty should be presented correctly"* [20]

The authors of a recently published paper on the legal aspects of EMF health risk assessment argue that international bodies like the WHO and the SCHENHIR don't apply the precautionary principle in a legally adequate way. They point out that law cases on other types of exposure show that the principle can be applied on the basis of weaker evidence than the evidence shown by the present state of research on EMF. The authors conclude that "*decision-makers are being misled by inaccurate risk assessment*.[21] See enclosure I

The *full proof* oriented risk assessment is also in conflict with the OECD Guidelines for Multinational Enterprises.

> *"…where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage."*[22]

4.3. The thermal paradigm: In Europe, most safety standards on low frequent EMF are based on a disputed technical physics' paradigm stating that the only known health consequences of EMF are acute thermal effects.[23] The *thermal paradigm* and the demanding risk criterion result in an exclusion of studies, which have found adverse effects under exposure levels where a significant rise of temperature can occur. Consequently, ***potential long-term effects like cancer are explicitly not taken into consideration by the present safety standards***, a fact that few policy makers and citizens are aware of.[24] The standards were established in 1998 by ICNIRP, t*he International Commission on non Ionizing radiation protection,* a German association that has evolved into a scientific authority on EMF-safety

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[20] COMMISSION OF THE EUROPEAN COMMUNITIES, *COMMUNICATION FROM THE COMMISSION on the pre-cautionary principle*, 02.02.2000 COM(2000)1 http://ec.europa.eu/dgs/health_consumer/library/pub/pub07_en.pdf

[21] Dämvik M, Johansson O. *Health risk assessment of electromagnetic fields: a conflict between the precautionary principle and environmental medicine methodology*. Rev Environ Health. 2010 Oct-Dec;25(4):325-33. http://www.ncbi.nlm.nih.gov/pubmed/21268445

[22] OECD Guidelines for Multinational Enterprises p.20 www.oecd.org/dataoecd/56/36/1922428.pdf

[23] *"These guidelines are based on short-term, immediate health effects such as stimulation of peripheral nerves and muscles, shocks and burns caused by touching conducting objects, and elevated tissue temperatures resulting from absorption of energy during exposure to EMF."* ICNIRP *GUIDELINES FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC, MAGNETIC, AND ELECTROMAGNETIC FIELDS p 496* www.icnirp.de/documents/emfgdl.pdf

[24] "*Induction of cancer from long-term EMF exposure was not considered to be established, and so In the case of potential long-term effects of exposure, such as an increased risk of cancer, ICNIRP concluded that available data are insufficient to provide a basis for setting exposure restrictions".* Idem p 496

and risk assessment. ICNIRP is also the core platform of the scientific faction calling for fully understood causality to define risk and justify precaution.

Many other scientists firmly reject the thermal paradigm and the omission of potential long-term health risks in standard setting. They include and consider studies indicating or showing health and environmental risks in assessment and conclude that the evidence is sufficiently strong to justify a prompt application of the precautionary principle. Their position is usually neglected by ICNIRP-guided authorities.

4.4. ICNIRP sphere domination of expert groups: The scientists defending *the ICNIRP interpretation*, i.e. the thermal paradigm, the "*no (established) risks"* approach, and the ICNIRP standards, are dominating most national and international expert groups in Europe, creating a quasi "interpretation monopoly" in many countries. As the same individuals are present in all important committees, *ICNIRP interpretation* scientists can refer to each other's assessments suggesting pluralism when there is not. Michael Repacholi, former ICNIRP president, founded the WHO's EMF department and presided it for ten years. From this position he had a golden opportunity to promote *the ICNIRP interpretation* world wide through several "standard harmonization programs", and to suggest scientists sharing his interpretation as members in different expert groups. He established a solid partnership between the WHO and the ICNIRP, giving the latter a shimmer of "public body".

Repacholi also invited the mobile phone, electric power and military industry to participate in elaborating the official WHO recommendations and brochures as well as formulating information about research results on the WHO EMF research official database. In the end of 2006 Microwave News revealed that Michael Repacholi is an industry consultant, and a petition tried in vain to remove him.[25] M. Repacholi's work can be illustrated by a case study of the constitution of WHO's EMF task group.[26] See enclosure II

All ICNIRP members are not *ICNIRP interpretation* scientists. The latter have a strong profile as systematic defenders of this interpretation and are well known in the EMF community. They repeat a set of key messages in all circumstances, criticise studies that suggest a harmful effect of exposure to EMF, are particularly present in official high-level expert groups, and as media spokesman representing "EMF science".[27] ICNIRP claims that all members are independent from industry. This is not true as many of them have received substantial research funding from the EMF-producing industry, and several are or have been employed or contracted by the same industry.

Are all *ICNIRP interpretation* scientists servants of the industry? Do they really believe in the paradigms they defend? Have they just found out that personal career goes smoother for those who stick to this interpretation? Time might give us the answer, until then we recommend two recent books about being a scientist: Andrew Marino's *Going somewhere*, and Devra Davis *Disconnect*.[28]

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[25] *Microwave News*, November 13, 2006, *It's Official: Mike Repacholi Is an Industry Consultant* www.microwavenews.com, Completing information on Repacholi, see http://omega.twoday.net/stories/877606/

[26] Don Maisch, *Conflict of Interest & Bias in Health Advisory Committees: A case study of the WHO's EMF Task Group,* Journal of the Australasian College of Nutritional & Environmental Medicine - April 2006

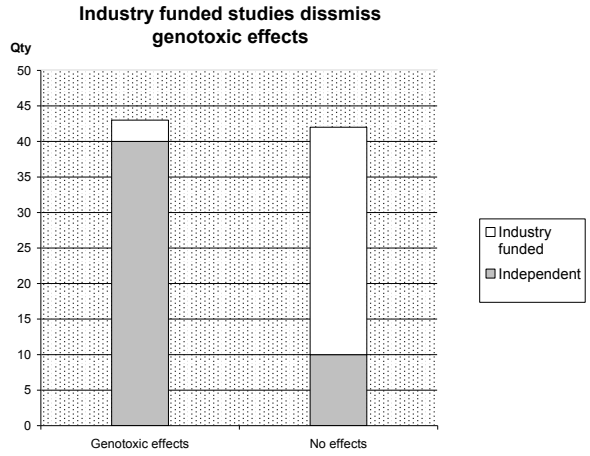
[27] Present standards are safe for children: WHO, *Children and Mobile Phones: Clarification statement* www.who.int/peh-emf/meetings/ottawa_june05/en/index4.html

[28] Andrew A. Marino, *Going Somewhere: Truth about a Life in Science,* Cassandra, 30 novembre 2010 Davis, Devra PhD, *Disconnect*, Dutton, Penguin group USA 2010.

4.5. Evidence of intellectual bias: The ICNIRP domination is a serious source of concern. The association has been criticized for a lack of transparency and pluralism.[29] New members are appointed by present members, and there is evidence that scientists sharing the *no risk* interpretation are privileged. Furthermore, when present or former ICNIRP members evaluate a scientific report that shows biological or health effects under the organisations standards or in a long time perspective, challenging the thermal paradigm and the dominating interpretation, there is evidence that they judge the report as irrelevant according to an *a priori* opinion. The same judgement is made when one of these scientists' own research occasionally indicates health effects.

This intellectual bias is likely to have a significant impact as the scientists defending the *ICNIRP interpretation* are dominating most European expert groups involved in risk assessment of EMF. While discrediting the peer-reviewed work of scientists defending a competing interpretation, the ICNIRP sphere scientists give ICNIRP-guided authorities partial input, impeding rational analyses and decision-making. The IEMFA welcomes that the IARC questions scientists' impartiality on these grounds: *"An IARC Monograph is an evaluation exercise that demands complete independence from all commercial interests and from advocates who might be perceived as advancing a pre-conceived position. In this connection, ..//.., about half of your recent publications on radiofrequency radiation are not original research papers but criticisms of studies that suggest a harmful effect of exposure to radiation emitted by mobile telephones*."[30] The same scientist is closely connected to ICNIRP, and is invited as a speaker to the association's upcoming conference on non-ionizing radiation and children's health.[31]

4.6. Indications of funding bias: Industry funded research on EMF does seldom find health effects, and practically never conclude there is a significant risk. *Microwave News* has analysed 85 studies on genotoxic effects and found that 32 of 35 studies funded by the telecom industry or military interests (US Air Force) did not find any effects while 80% of the independent scientists revealed a risk.



Data: Studies of genotoxic effects from radio frequent EMF. *Microwave News* July 2006

[29] European Parliament *"Calls on the International Commission on Non-Ionising Radiation Protection and the World Health Organisation (WHO) to be more transparent and open to dialogue with all stakeholders in standard setting*. European Parliament resolution of 2 April 2009 on health concerns associated with electromagnetic fields (2008/2211(INI))

[30] Letter to Dr Lerchl from the IARC www.diagnose-funk.ch/downloads/df_bp_who-lerchl_iarc-26oct10.pdf

[31] ICNIRP: *Program NIR and children's health.* www.icnirp.org/Kids/kids&NIRprog.htm

Fifty-two scientists from prestigious institutions like the Karolinska Institute Stockholm, the Columbia University NY, and the Moscow Institute of Biophysics, affirm in the Benevento resolution that *"There is evidence that present sources of funding bias the analysis and interpretation of research findings towards rejection of evidence of possible public health risks"*.[32]

4.7. The asymmetric power of stakeholders: The generous ICNIRP standards and the absence of restricting regulations (precaution) are beneficial to the power and telecom industry as well as to the military sector. Their technology and products are adapted to the ICNIRP standards, which are consequently of utmost economic and strategic importance.

> *"We support global harmonisation of the recommendations formulated by ICNIRP"*
> *"We cannot guarantee that we will not ..//.. be required to comply with future regulatory changes that may have an adverse effect on our business."* Ericsson[33]

Much, but not all, is known about these powerful stakeholders' role in the creation of the *ICNIRP interpretation.* Yet, it is manifest that they support and promote it by all the means that the market of influence offers. (Lobbying, spin, funding etc). There are persistent and strong indications of how the industry's direct and indirect representatives deploy different "product defence" strategies, including measures against alternative interpretations. By targeting national and international authorities, policymakers, courts, the media, and the public, they have obtained an impressive influence on policy, regulation and opinion. The telecom industry also influences the media by ownership and as advertisers.[34]

It is not impossible that the above described backing from the EMF-producing industry is the main cause underlying the domination of the *ICNIRP interpretation.*

Public and other independent sources of funding are scarce compared to industrial resources. Many early warning scientists have problems finding financial solutions, and there are numerous testimonies from scientists who have lost their funding or their job when they started to find indications of harmful health effects of EMF. NGOs also suffer from a lack of resources, and have no possibility to balance the massive communication on the dominating interpretation.[35]

4.8. Accountability ?

It should also be emphasized that some countries, like Russia, have decided on a precautionary approach and have not adopted the WHO supported ICNIRP interpretation and recommendations.

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[32] Giuliani ed al. Non Thermal effects and mechanisms of interaction between electromagnetic fields and living matters. An ICEMS monograph, Ramazzini Institute Bologna 2010

[33] Ericsson, *Mobile Communications and Health*, www.ericsson.com Ericsson, *REGULATORY, COMPLIANCE AND CORPORATE GOVERNANCE RISKS* www.ericsson.com/thecompany/investors/financial_reports/2009/annual09/results-risk-factors-regulatory-compliance-and-corporate-governance-risks.html

[34] Example of recent books presenting indications of industry actions in the EMF field: Davis, D. PhD, *Disconnect*, Dutton, Penguin group USA 2010, Mona Nilsson, *Mobiltelefonins hälsorisker*, 2010. ISBN 978-91-633-3148-0.

[35] The IEMFA is able to make a compilation of testimonies from scientists that have lost their funding.

"The existing standards cannot guarantee the safe, healthy development of the next generation."
Professor Yury Grigoriev, Chairman of Russian National Committee on Non-Ionizing Radiation Protection[36]

There is evidence of a forthcoming EMF health scandal. When (or if) it occurs, who will be accountable? Some stakeholders, among them ICNIRP and the WHO, are already preparing themselves on how to deal with this situation. They state:

*"The role of **ICNIRP** as a scientific advisory body would be to analyze the risk in terms of levels of consequences that could be quantified. The acceptability of such risks ..//.. fall outside the remit of ICNIRP".*[37]
*"The **ICNIRP** guidelines are neither mandatory prescriptions for safety, the "last word" on the issue nor are they defensive walls for Industry or others."*[38]

*"**The World Health Organization** does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use."*[39]

*"Although **Ericsson**'s products are designed to comply with all current safety standards and recommendations regarding electromagnetic fields, we cannot guarantee that we ..//.. will not become the subject of product liability claims or be held liable for such claims"*[40]

"We are not responsible for anything we claim as authority officials"
Martin Tondel, **Health Protection Agency**/Socialstyrelsen Sweden, Båstad, November 2011

*This case [Murray v Motorola 2009] is interesting because it shows that as long as **manufacturers** are making phones which comply with the FCC limits they are not liable for bodily harm caused by the exposure.* [41]

*"[The European Parliament] is greatly concerned about the fact that **insurance companies** are tending to exclude coverage for the risks associated with EMFs from the scope of liability insurance policies*[42]

This is interesting information for the policy-makers, who base their decisions on the opinions and assessments of controversial experts and health authorities, like ICNIRP.

[36] RRT conference: EMF & health – a global issue, Sep 2008. http://archive.radiationresearch.org/conference/
[37] ICNIRP, *General approach…* p.545 www.icnirp.de/documents/philosophy.pdf
[38] Paolo Vecchiam ICNIRP at the RRT conference: EMF & health – a global issue, Sep 2008. http://archive.radiationresearch.org/conference/
[39] WHO, *Establishing a dialogue on risks from EMF.* www.who.int/peh-emf/publications/en/EMF_Risk_ALL.pdf
[40] Ericsson, *REGULATORY, COMPLIANCE AND CORPORATE GOVERNANCE RISKS* www.ericsson.com/thecompany/investors/financial_reports/2009/annual09/results-risk-factors-regulatory-compliance-and-corporate-governance-risks.html
[41] Lloyd's emerging risks team, *EMF from mobile phones: recent developments, Nov 2010,* p15
[42] European Parliament resolution of 2 Apr2009 on health concerns associated with EMF, art27(2008/2211(INI))

III. The IEMFA recommendations

5. IEMFA RECOMMENDATIONS ON ENVIRONMENTAL ASSESSMENT

The following recommendations are based on the lessons from the large scale implementation of EMF emitting techniques, and the inappropriate, incomplete, and biased management of the scientific findings on actual and potential adverse effects of EMF on public health.

5.1. SUMMARY OF THE IEMFA RECOMMENDATIONS

RISK AND PRECAUTION

1. Make risk assessment more prevention oriented. Introduce health and environmental impact studies.[43] Focus more on the manufacturers' responsibility.

2. Improve the risk assessment standards and quality: Constitute a standard risk scale, make the indication of the risk level mandatory, commission several risk hypotheses, consider compatibility with real life. Consider the potential extension and seriousness of risk.

→ *The dominating interpretation on EMF health risks is not compatible with empiric data, and does not consider the extension of the emissions or the seriousness of potential diseases.*

3. Consider and protect early warning scientists

4. Formulate a human rights oriented definition of the Precautionary and ALARA Principles. Work for an adequate application of the EU Commission's "Communication on the precautionary principle".

→ *There is an urgent need for information and precautionary measures concerning EMF health risks!*

BIAS MANAGEMENT

5. Create an agency on "Expert group Ethics" working on Guidelines and Education on expert group and bias management, addressing governmental agencies and international bodies, and developing partnerships with experts on assessment bias.

6. Formulate a set of recommendations on expert group ethics, preparing the constitution of the Agency. →*In the EMF-field a number of concrete recommendations could be formulated in cooperation with the IEMFA to prepare upcoming assessments at the WHO.* → *EMF: It is urgent to break the unfounded quasi-monopoly of the "ICNIRP interpretation".*

7. Advocate for an increase of public funding of independent research especially as to EMF.

8. Recommend the creation of independent commissions for the allocation of public funds.

9. Demand mandatory transparency of expert and lobby groups.

SCIENTIFIC ASSESSMENT AND DEMOCRACY

10. Make a statement against paternalism. Pluralist scientific assessment is one source of information. Empiric data from citizens and NGOs, for example, also give important input.

11. Give the electro-sensitive a voice and recognition.[44]

12. Promote pluralist and democracy-enhancing debates.

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[43] OECD Guidelines for Multinational Enterprises p.21, *Assess, and address in decision-making, the foreseeable environmental, health, and safety-related impacts associated with the processes, goods and services of the enterprise over their full life cycle. Where these proposed activities may have significant environmental, health, or safety impacts, and where they are subject to a decision of a competent authority, prepare an appropriate environmental impact assessment.* www.oecd.org/dataoecd/56/36/1922428.pdf

[44] A similar suggestion has been made by the European Parliament. EU Parliament resolution of 2 April 2009 on health concerns associated with electromagnetic fields, article 28 (2008/2211(INI))

5.2. IEMFA RECOMMENDATIONS ON RISK AND PRECAUTION

1. Make risk assessment more prevention oriented. Present experience, particularly in the EMF field, suggests more scientific assessment focused on prevention: introduce health and environmental impact studies before launching new potentially harmful products to the market. It is also important to focus more on the manufacturers' responsibility. Industry spends huge amounts on research on health risks and on communication of the results. An adequate regulation on the producers' responsibility could reorient part of these funds to health impact studies. *Even though it is late in respect to EMF, impact studies could still be made regarding all new EMF-emitting applications and devices that are continuously being launched.*

2. Improve the risk assessment standards and quality:
- Constitute a standard, multilevel risk scale. Risks are not binary. Rational decision makers on precaution need to consider the risk level. The standard scale could go from the confirmed conclusion of "no harm" to a totally established causality with at least 10 steps in between.
- Make an indication of the risk level mandatory. All risk assessment should include an indication of the risk level according to the above-mentioned scale. If there are several interpretations of the risk level, they should be indicated and explained. *This measure is urgent in EMF risk assessment.*
- Commission several risk hypotheses. Policymakers would be helped by two scenarios on environmental and emerging risks: one optimistic, one precautionary.
- Consider compatibility with real life. Take scientific results supporting empiric observation and experience into particular consideration. *The dominating interpretation of EMF health risks is not compatible with empiric data.*
- **Consider the potential extension and seriousness of risk.** *EMF exposure of the population and the environment is extended; this should be considered in EMF risk assessment and decision making. In addition certain diseases (potentially) related to EMF are serious. (Malignant brain tumours, Alzheimer's disease.)*

3. Consider and protect early warning scientists, and take the high costs of "late lessons" (asbestos, tobacco etc) into consideration. Monitor harassment and the relation between lost funding and results. *This is urgent in the EMF area.*

4. Formulate a human rights oriented definition of the Precautionary and ALARA Principles. This could be inspired by the definition of the European Environment Agency, and become a European reference. In the mean time, work for a more adequate application of the European Commission's "Communication on the precautionary principle", for example regarding non ionizing radiation (EMF):

a. "The degree of scientific uncertainty" should be presented correctly "at each stage" of a risk assessment. *This would imply an acknowledgement of scientists having found different degrees of risk, and consequently a full recognition of the actual scientific controversy.*
b. The precautionary principle is applicable when "scientific evaluation does not allow the risk to be determined with sufficient certainty". *Precaution is consequently applicable in the EMF field. This includes lower standards and adequate information to the public.*

***There is an urgent need for information and precautionary measures** in this field.*

5.3. IEMFA RECOMMENDATIONS ON BIAIS MANAGEMENT

5. Create an agency on "Expert group Ethics" working on Guidelines and Education on expert group and bias management:

a. **Charts of conduct**: declaration of interest, funding history, intellectual bindings, transparency, etc.
b. **The constitution and characteristics of expert groups:** Pluralist, multidisciplinary, representing old and new scientific paradigms, weighted independence, democratic.
c. **Risk assessment and reporting**: Standard risk scale, reports stating scientific controversies instead of presenting majority opinions etc, Human Rights compatible risk assessment, consider compatibility with real life empiric data, introduce several risk hypotheses, consider the potential extension and duration of the potentially harmful substances or emissions, as well as the seriousness of the related risks.
d. **The audit of expert groups:** Who, when, how? Protocol?
e. **Bias management:** How to deal with Intellectual attachments, funding bias, identification of mercenary scientists, etc.
f. **Civil society observers:** Balanced participation.
g. **Other needed measures**.

This truly independent agency should address governmental agencies and international bodies that need to call for expert assessment, including the WHO. It could develop partnerships with scholars, NGOs and other specialists of expert assessment bias, depending on the area. Examples: **EEA,** The European Environment Agency, **Corporate Europe Observatory (CEO)** (a research and campaign group working to expose and challenge the privileged access and influence enjoyed by corporations and their lobby groups in EU policy making), **Defending science** (examines the nature of science and how it is used and misused in government decision-making and legal proceedings), the **IEMFA** (focuses on bias in EMF risk assessment), the **EGE** (European Group on Ethics in Science and New Technologies).[45]

The EU Parliament proposes that the latter should be given "the additional task of assessing scientific integrity in order to help the Commission forestall possible cases of risk, conflicts of interests, or even fraud that might arise now that competition for researchers has become keener".[46]

6. Formulate a set of recommendations on expert group ethics and role, preparing the constitution of the Agency.
Work for the establishment of truly pluralist expert groups in the EMF-field at the international (WHO), European (SCENIHR), and national level (Health authorities), representing different risk interpretations. A number of concrete recommendations could be formulated in cooperation with the IEMFA to prepare upcoming assessments, for example at

[45] CEO www.corporateeurope.org, Defending science www.defendingscience.org IEMFA www.iemfa.org, EGE, European Group on Ethics in Science and New Technologies http://ec.europa.eu/european_group_ethics/index_en.htm
[46] European Parliament resolution of 2 April 2009 on health concerns associated with EMF (2008/2211(INI))

the IARC and the WHO. Independent scientists seem to be in minority in these expert groups. NGOs are not represented as observers, while industry is.[47]

→ It is urgent to break the unfounded quasi-monopoly of the "ICNIRP interpretation".

7. Advocate for an increase of public funding of independent research. *Generate more sources of funding for independent scientists in the EMF domain - on a diagnosis and treatment of EHS, on potential health risks of base stations, etc. (The IEMFA can supply a full list of urgent topics.)*

8. Recommend the creation of independent, pluralist commissions for the allocation of public funds. The committee should assure that provision is granted to scientists from different factions and disciplines, privileging independent groups, including early warning scientists. *This is urgent regarding EMF in numerous European countries.*

9. Demand mandatory transparency of lobby groups, and safeguards against revolving doors and lobbyists dominating expert groups at the EU institutions, the WHO, and other bodies related to EMF health assessment. The principles could be based on ALTER-EU's claims.[48]

5.4. IEMFA RECOMMANDATIONS ON SCIENTIFIC ASSESSMENT AND DEMOCRACY

10. Make a statement against paternalism. We suggest that policymakers consider scientific assessment as one source of information among others. If they don't they risk to embrace paternalism. Observations and experiences from NGOs, medical professionals, and other groups of citizens can also give important input. *EMF: Consider the numerous medical doctors' appeals, and give NGOs focused on EMF the right and the resources to participate in a relevant and efficient way.*

11. Give the electro-hypersensitive (EHS) a voice and recognition. *A growing number of citizens are all reporting similar light-to-severe symptoms and diseases as a result of exposure to EMF. They come from different countries and socio-professional categories, and are not related to each other. This group is completely neglected in risk assessments and decisions on precautionary measures. The EMF/EHS organisations can provide accurate information about their experiences and needs, thus assuring their participation in democratic decisions impacting them directly. There is evidence to the effect that they suffer from discrimination since public services and participation forums are rarely adapted to their disability.* A similar suggestion has been made by the European Parliament.[49]

12. Promote pluralist and democracy-enhancing debates between different scientific interpretations, but also between experts, NGO, and citizens.

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[47] IARC Monographs on the evaluation of carcinogenic risks to humans: Volume 102: Non-Ionizing Radiation, Part II: Radiofrequency Electromagnetic Fields http://monographs.iarc.fr/ WHO research agenda http://www.who.int/peh-emf/research/agenda/en/index.html and EMF-project http://www.who.int/peh-emf/project/EMF_Project/en/index.html

[48] ALTER EU position papers http://www.alter-eu.org/fr/documents

[49] EU Parliament resolution of 2 April 2009 on health concerns associated with EMF, article 28 (2008/2211(INI))