The two-perspective risk assessment system in Europe

World health change possibly linked to electromagnetic fields

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1. The International EMF Alliance

- Global umbrella NGO with public-health interest

- Interprets (life) science from a health-oriented biology perspective

- Supported by 50 independent life scientists, medical doctors, other experts and

- 75 NGO’s throughout 45 countries worldwide
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• Context and deeper layers of the policy system on EMFs & health in Europe (2 – 3)

• Focus on different paradigms & science interpretations underlying this system (4 – 6)

• Their deeper system origin, and fundamental impacts on assessed (EMF) risks & regulatory decisions (7 – 8)

• Recommendations to direct the existing system into public-health protection (9)
Last decades: rapid growth of overlapping functional impairments, often connected to work- or lifestyle

- Neurological and neuroendocrine health problems
- Stress, depression and anxiety disorders
- Brain diseases, autism spectrum disorders
- Hypersensitivity and pain disorders
- Premature dementia (neurodegenerative disorders)
- Different types of cancers (dysregulated cell growth)
- Energy problems chronic fatigue, exhaustion, burnout
- Allergic and autoimmune diseases
- Bone, joint and muscle disorders, et cetera
Rapid expansion of public costs

- Prime value of life is threatened: Public Health
- Threats of structural and serious damage
- Huge economic, social and health costs
- Loss of occupational productivity
- Explosive costs of health-care systems
- Muscle & joint pain alone costing EU €240 billion a year
- Disorders of the brain costing EU €798 billion in 2010
- Many more billions for other chronic diseases
3. Can these modern diseases be caused by electromagnetic fields?

- Is the dramatic increase of EMFs a neglected factor in an unhealthy Western work- or lifestyle?

- Can these chronic energy fields of ‘wireless’ and ‘wired’ technical appliances form a heterogeneous cause of new ‘multifactorial’ system diseases?

- What is the ability of the existing policy system to protect human health?
4. Two opposite science interpretations on long-term risks

**Traditional ‘EMF-Safety’ community**
“No hard evidence for health risks”

**Recent ‘EMF-Health’ community**
“World health at risk, since evidence of serious disruption to biological systems Associations with many of the increasing chronic diseases & disorders”
5. Science interpretation within a risk-protection system

Paradigm – it’s wide effects

- Set of assumed concepts, theories & methods
- The guiding frame of mind of a scientific community
- Generates the organizing and understanding of reality
- More or less true-to-reality (earth flat or round)

- Different paradigms are incompatible
- Revolutionary competition between paradigms

- Implicit basis for science interpretation
- Thus guiding policy, research and communication
Framework for risk assessment

- Paradigm-based approach for overall-risk assessment
- Chosen approach for assessing ‘facts’ & ‘overall risks’
- Approach for evaluating & weighing available evidence
- Rules of the game for interpreting science
- Outcome is more or less true-to-reality
- If so, consistent with other types of knowledge

Input for risk management

- Resulting assessed risks form input for risk research, risk communication, risk management et cetera
- Thereby major effects on risk protection systems
Frequently manipulated, for instance

• Advocates of vested interests infiltrate the pipeline and secretly situate themselves at various key points

• Using assumptions, methods, and interpretations that appear legitimate on the surface, concealing incremental choices that ensure that research support predetermined ends

• Half of environmental epidemiologists in 2001 survey had been harassed by someone with interest

• Hiring scientists to attack unwelcome research

Quotes from McGarity & Wagner
Bending Science

bending science
How Special Interests Corrupt Public Health Research
THOMAS O. McGARTY
WENDY E. WAGNER

Merchants of Doubt
How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming
Naomi Oreskes & Erik Conway
Recent examples of bended science

2011
“Member WHO RF Committee linked to telecom industry”

2012
“Climate skeptics financed”
“EU Food Safety Authority not independent”
“Psychiatry in grip of commercialism”
“Tabaco industry ruthless & deviant enemy”
Chosen profile for policy action

Level of precautionary action

Level of risk evidence
Low ► High

Scientific/technical absolutist
(EMF-Safety community)

Cautious environmentalist
(EMF-Health community)

Action profiles of policy advisors
Weiss 2003
6. The two-perspective protection system for EMFs in Europe

Traditional ‘EMF-Safety’ community

Recent ‘EMF-Health’ community

Policy Regulations Research Communication Education Financial flows
History of the current system for risk assessment EMFs (1)

- 1884 Institution of Electricity and Electronics Engineers
- 1966 IEEE co-sponsors an *Exact Physics*’ RF standard to ensure direct EMF-Safety of technical appliances
- 1998 The International Commission on Non-Ionizing Radiation Protection (ICNIRP) incorporates the IEEE RF standard and paradigm in guidelines for EMF protection
- 1999 the *Exact Physics*’ guidelines are approved by EC/SCENIHR, and widely recommended for EU policy
- 2002 a corresponding ICNIRP framework for EMF risk assessment was made adopted by WHO in 2006 and promoted as established risk assessment

2007 This ‘complex biology’ science interpretation is criticized by an EU Fast Response Team on EMF and Health, embracing the ICNIRP ‘Exact Physics’ paradigm.

2010 ‘Biology’ scientists publish EMF Seletun resolution containing guidelines for public-health protection.

2010 These ‘Complex Biology’ guidelines are neglected, pointing (2007) to ‘Exact Physics’ reference reports.

2011 Wide requests for new paradigm, standards.
The EMF-Safety community: Technical & Governing institutions

- Technological industries
  - KEMA, IATA, Telecom IA, IEEE IAS

- Technical and medical experts
  - ACGIH, HPS, IEEE, IRPA, NRPSs, SCENIHR, WHO IARC

- Technical advisory bodies
  - ICNIRP, NCRP, EMF-NET

- Governments and Authorities
  - EU Council, EU Commission, COST, NGovs, WHO, NHAs

- Last century – ‘establishment’
The EMF-Health community:
Environment & Health institutions

Health & Environment Advisory bodies
ENSSER, EEA, HDO, EPA, HEAL, IEMFA, RNCNIRP

Health-oriented Life Sciences
BEMS, BioInitiative Group, Ecolog, ICEMS

Public-Health and Environment doctors
CHE, EUROPAEM, HICs, ISDE, NMAGs

Workers, Patients & Civil institutions
ETUC, EPSU, AMICA, EFBWW, EU Parl, PACE, NGOs

-Last decades -recent network-
Two distinct paradigms, perspectives and guidelines for EMFs protection

The ‘Exact Physics’ paradigm of the traditional EMF-Safety community

The ‘Complex Biology’ paradigm of the recent EMF-Health community
Traditional EMF Safety community
Including IEEE, ICNIRP, WHO, EU Commission

- **History**
  - Electronics
  - Engineering & Physics

- **Background**
  - Applied technology

- **Objective**
  - Acute Safety of EMF technology

- **Focus**
  - Acute risk of short term high exposure

- **Action pathway**
  - Electric potentials, currents & heating of tissues

- **Method**
  - Calculating based on theoretical models

PHYSICS PARADIGM
Emerging EMF Health Community
Including ICEMS, BIG, Seletun, IEMFA, EU Parliament

History
Experimental Biology

Background
Integrative life-sciences

Objective
Long-term influences of EMF on Health

Focus
Long-term risk of prolonged low-level exposures

Action pathway
Heterogeneous bioaccumulation of disruptions

Method
Measuring EMF-induced bio-disruptions

Biology Paradigm
7. Credibility of the ‘Exact Physics’ science interpretation

- Worldwide critics, appeals and warnings from life scientists, doctors, biomedical experts and civilians

- Requests for a thorough review of the science base of current EMF standards, plus more adequate paradigm

- Accumulation of theoretical assumptions, model-based formulas, mathematical calculations, estimations, combining of data, judgments, weighing, assigning of relevance, selections of studies, et cetera

- This results in high level of scientific uncertainty
8. Conclusion

The protection system for EMFs (a)

- By historical lead a worldwide advisory system on EMF protection could strategically be established, based on an ‘Exact Physics’ paradigm of technological institutions

- A ‘Physics’ paradigm is fundamentally inadequate for the complex dynamic domain of ‘Living organisms’. Biological pathways of EMF action are downplayed. Only ‘Exact Physics’ EMF mechanisms are recognized (tissue heating, e-currents, e-potentials)

- The established system thus produces fundamentally misleading EMF-risk information for worldwide policies, regulations, -research and -communication on EMF protection, in a paradigm-controlled way
Conclusion

The protection system for EMFs (b)

• The ‘Exact-Physics’ policy systems that became internationally established in the last century are thereby fundamentally unable to protect public health.

• According the ‘Complex biology’ science interpretation, heterogeneous EMFs form a highly plausible causal work- and lifestyle factor of chronic multisystem diseases, that already may evoke huge public costs. They form a wide and global threat for global health.

• Policy decisions for unlimited roll-out of EMF technology (electricity, WiFi etc) are based on misleading risk information, bring large profits for industries but may further increase worldwide chronic diseases.
9. Urgent actions to build a public-health protection system EMFs

1. It is essential to have ‘complex biology’ persons in key positions of central institutions worldwide.

2. Implement existing ‘complex biology’ guidelines, i.e. the ten key points of the Seletun-scientists resolution, including reduction of EMFs exposure.

3. In the complex domain of ‘living organisms’: switch from unfeasible action profile ‘technical absolutism’ to more appropriate ‘environmental precaution’.

4. Shift financial flows to ‘complex biology’ actors.
5. Let ‘complex biology’ parties develop a biologically-based new framework for science & assessment of (long-term) public-health risks of EMFs

6. Switch selection of science-committees members, program committees and reviewers et cetera to ‘complex biology’

7. Change institutional control structure worldwide: public health & environment institutions should control technology institutions, not vice versa
IEMFA will gladly assist in the urgent transition to a public-health protection system

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