

**Coping with Asymmetric Tragedies under Imperfect Information: Electrosensitivity and the Ubiquitous EMF Exposure**

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*“It’s like getting a one-way ticket to hell and having to get yourself out of there the best way you can.”*

a member of the Swedish Association for the ElectroSensitive on becoming electrosensitive.

(Het-projektet, 2006: 5, translation by the author)

*“You are quite right, but the matter you are meddling with is wrong.”*

Finnish Minister of Transport Ole Norrback in response to a query concerning the potential health risks of overlapping wireless networks (Nilsson et al, 2005: 211, translation by the

author).

## **Introduction**

Conventional notions of tragedy rarely problematize the concept of tragedy itself.

Wars, natural disasters, terrorist attacks and other forms of symmetrically observable physical events exemplify the common assumption of the unproblematically objective nature of the events leading to human suffering: while the perceptions, reactions and coping strategies of the victims may vary, the symmetrically observable physical event provides a focal point that helps to structure the processing of the shared meanings and individual interpretations associated with the tragic event. As the incidence of the tragedy and the concept of victimhood remain relatively uncontested, the main task of both victims and outsiders is largely confined to selecting the most appropriate methods of coping or intervention based on the shared and socially stable notion of the tragic event itself.

How is the healing process transformed when imperfect information confines the experience of a tragedy to a certain subset of the population? In other words, how should

individuals cope with a tragedy when the very existence of a tragic event may only be known to its victims? Should the ethics of coping be influenced by the fact that the constituency in favor of denying, misidentifying or ridiculing the tragic event may be far more powerful and better organized than the victims?

Among the ongoing “artificial disasters of undeterminable extent” (Beck, 1995: 2), perhaps none illustrate the ethical challenges involved in asymmetrically experienced tragedies better than the human suffering induced by electromagnetic fields (EMFs) in general and a functional impairment called electrosensitivity<sup>1</sup> in particular. As the logical corollary of the common, albeit incorrect, perception that EMFs do not have non-thermal effects on living organisms, electrosensitivity in its widest sense could be defined as any interference of external low-intensity EMFs with the normal functioning of the human body or mind. Nonetheless, for practical purposes it is typically the seriousness of the perceived symptoms, ranging from mild headache and nausea to heart arrhythmia, internal bleeding and possibly death, which determines the diagnosis. As a result of the expanding mobile phone, wireless internet, satellite communication and other forms of wireless networks virtually no living organism on earth can avoid being constantly exposed to increasingly strong and diverse forms of EMFs, prompting concerned scientists to refer to the forced irradiation and its human consequences as “the largest human biologic experiment ever” (Salford et al., 2001).<sup>2</sup>

The asymmetric nature of the resulting personal tragedies stems largely from the incapacity of the current exposure limits – designed to prevent excessive heating of homogeneous matter only<sup>3</sup> – to protect living organisms from non-thermal, non-linear health effects. Contrary to a common belief, the existence of such effects is not denied by the relevant authorities, but merely regarded as an unsuitable basis for setting exposure limits (Hyland, 2001: 21). Yet the scientific knowledge on the likely existence of such power- and frequency-specific “window-effects” has not found its way to the social consciousness when it comes to the recognition or mitigation of the personal tragedies experienced by potential sufferers.<sup>4</sup> As no exposure guidelines exist for the prevention of non-thermal or non-linear effects and such effects may vary widely from one individual to another, the notion of tragedy becomes socially contested based on the perceived credibility of its underlying causal patterns. For the victims, inability to avoid exposure often leads to radical life-changing events ranging from forced unemployment and isolation due to an inability to withstand the exposure levels required in normal occupational or social settings to permanent handicaps and death – both self-inflicted and resulting from sudden illnesses. For the rest of the society – particularly those institutions that might conceivably be liable for compensation should the connection between EMFs and the personal tragedies of the victims become widely acknowledged – no symmetrically observable problem is normally perceived to exist except in the most extreme

instances such as death, which are routinely attributed to some alternative causal patterns.

Drawing on the personal tragedies induced by EMFs in general and electrosensitivity in particular, this paper aims to make a contribution to the ethics of coping with asymmetrically experienced tragedies that reconciles the victims' quest for justice and recognition with the potential skepticism that may manifest itself elsewhere in the society with regard to the specific causal patterns attributed to certain types of tragedies by the victims and the alleged institutional failures related to knowledge production and dissemination. In the case of electrosensitivity, the socially contested nature of the tragic event subjectifies not only the victim's reaction to a tragedy, but the very notion of victimhood itself. Hence any possible healing process would have to begin by re-establishing a focal point for the social negotiation of the tragic event and the human agencies involved. The following sections explore electrosensitivity in more detail from the victims' perspective, summarize some of the challenges involved in scientific knowledge production and dissemination, and propose that a more widespread awareness and enforcement of the existing ethical guidelines for human experimentation – the Nuremberg Code – might help to mediate asymmetrically experienced tragedies in a manner that respects the rights and concerns of all the parties involved.<sup>5</sup>

## **Contested Tragedies, Subjective Victimhood? Electrosensitivity and Its Impact on the**

### **Sufferers**

Popular conceptions of electrosensitivity often invoke images of perfectly healthy individuals who detect all surrounding EMFs with ease and feel unwell only during the neatly periodized episodes of exposure to different forms of electrosmog. Although an aggravation of the symptoms during or within a certain period after EMF exposure is often regarded as one of the central diagnostic criteria, according to many sufferers sufficiently low-EMF environments may no longer exist to recover from symptoms – or to make the connection between the symptoms and EMF exposure in the first place. Thus continuous forced exposure may lead to a vicious circle of aggravating symptoms and decreasing diagnostic credibility.<sup>6</sup> As all living organisms are constituted by and react to EMFs in multiple ways<sup>7</sup>, electrosensitivity may be a misnomer that conceals the potential magnitude of the issues at stake from wider scrutiny. The Freiburger Appeal, a manifesto of medical professionals for stricter application of the precautionary principle for EMFs, for instance, lists the following symptoms associated with EMF exposure as being observed with alarming prevalence by physicians:

-Learning, concentration, and behavioral disorders (e.g. attention deficit disorder, ADD)

- Extreme fluctuations in blood pressure, ever harder to influence with medications
- Heart rhythm disorders
- Heart attacks and strokes among an increasingly younger population
- Brain-degenerative diseases (e.g. Alzheimer's) and epilepsy
- Cancerous afflictions: leukemia, brain tumors
- Headaches, migraines
- Chronic exhaustion
- Inner agitation
- Sleeplessness, daytime sleepiness
- Tinnitus
- Susceptibility to infection
- Nervous and connective tissue pains, for which the usual causes do not explain even the most conspicuous symptoms (IGUMED, 2002: 1)

Among the symptoms that are specifically attributed to electrosensitivity, “dermatological symptoms (redness, tingling, and burning sensations) as well as neurasthenic and vegetative symptoms (fatigue, tiredness, concentration difficulties, dizziness, nausea, heart palpitation, and digestive disturbances)” are perhaps the most common (WHO, 2005). Some sufferers regard themselves as “sensitized” rather than “sensitive”, attributing their illness to substantial amounts

of exposure that might have resulted in the onset of similar symptoms also in other individuals.<sup>8</sup>

Others see themselves more as electrically “injured” than “sensitive”, suggesting that it is the chronic pain or the permanent physiological damage caused by previous exposure rather than the specific symptoms that may manifest themselves during or shortly after each subsequent period of exposure that should be the main focus of attention. While technically any person suffering from any EMF-induced symptom could be classified as electrosensitive according to the common but inaccurate view that EMFs do not have non-thermal effects, in typical usage the term has come to refer to those individuals who are both aware of the connection between their symptoms and EMF exposure and perceive the symptoms to be sufficiently severe to merit the description.

The personal tragedies attributed to EMF exposure also involve a diverse range of circumstances, coping mechanisms and outcomes. Nonetheless, what all have in common is the radical reassessment of the victims’ life situations necessitated by previous or ongoing exposure to EMFs. Although direct EMF exposure or indirect mechanisms such as the body’s reduced melatonin production (see e.g. Cherry, 1999) cannot be ruled out as potential causes of virtually any type of cancer, it is the symptoms experienced under or shortly after EMF exposure that provide perhaps the most relevant material to study the informational asymmetries of the resulting personal tragedies. Without taking a stand on the specific circumstances in each

individual case, the following examples illustrate the diversity and gravity of the personal tragedies experienced by the victims once the symptoms attributed to EMF exposure have become sufficiently severe to necessitate permanent avoidance:<sup>9</sup>

- “A high-flying TV exec who travelled the world for work” went from being “Mrs Powerhouse with a really wonderful life, a lovely partner, lovely home to being a decrepit old woman”, unemployed and largely confined to her shielded house to reduce the symptoms attributed to EMF exposure (Abrams, 2007).
  
- A final year medical student was forced into lifelong unemployment and advocacy, “having discovered how to remain healthy”, but “being effectively disabled” by the society due to the lack of low-EMF zones (Firstenberg, 2004).
  
- An engineer – the leader of a group of 12 out of which 10 became electrosensitive – had to move to an electrically sanitized cabin due to his symptoms. He successfully continued distance work in candlelight for nearly a decade, but was finally fired and apparently thus denied the opportunity for the standard distance work arrangements available to non-electrosensitive employees (Bergman, 2000).

- A 73-year old retiree can no longer, after 17 years of electrosensitivity and 55 years together with her husband, be close to her husband due to his electric pacemaker (Krook, 2006).
- A 21-year old electrosensitive is asking his mother for help to die at a Swiss suicide clinic after living alone in the forest in a caravan, a tent and a cottage for nearly three years. Due to more recently developed light sensitivity he is only able to go outside at nighttime (Nord, 2006).
- A long-standing sufferer from electrosensitivity and multiple chemical sensitivity successfully committed suicide “at her second serious time of trying” amidst “disbelieving children” and her husband “conniving with doctors”. Similar stories appear to be common in support groups, who “talk weekly and almost daily to those on the edge of total despair ... read their sad letters detailing their lives in ruins, in pain and desperate for relief.” (ElectroSensitivity-UK, 2007).

The personal tragedies attributed to EMF exposure are unique in both how the experiences of the victims are unmediated by objective, widely accepted factual information

concerning the factors leading to the personal tragedies and the extent to which the notion of tragedy itself is subject to interpretation and negotiation with the surrounding social structures. For the victims of symmetrically observable and thus uncontroversial tragic events, the entire experience is continuously penetrated by the interpretations, interventions and socially-mediated significance originating from the physical and social structures that constitute the victim's worldview. In the case of electrosensitivity, in contrast, nothing in the victim's surrounding reality might suggest that a legitimate tragedy is taking place. The victim's construction of the tragic event is generally not regarded as authentic, which compounds the social impact of the tragic experience and purifies it from the mental guidance of learned crisis management techniques. As one sufferer puts it:

We have more and more people, sick, dying, seeking relief from our suffering, leaving our homes and our livelihoods, living in cars, trailers and tents in remote places. Unlike victims of hurricanes and earthquakes, we are not the subject of any relief efforts. No one is donating money to help us, to buy us a protected refuge; no one is volunteering to forego their cell phones, their wireless computers and their cordless phones so that we can once more be their neighbors and live among them (Firstenberg, 2006).

It is not necessarily the neglect of the victims that distinguishes electrosensitivity from “hurricanes and earthquakes”, but the socially contested nature of the victims’ knowledge claims on the very existence of such tragic events.

The lack of a focal point for the social negotiation of EMF-induced tragedies subjectifies not only the victim’s experience, but also the notion of victimhood itself. In a symmetrically observable tragedy the shared knowledge of the traumatizing physical event defines the spectrum of likely human reactions upon which communication and healing strategies can be based. Wars, natural disasters or terrorist attacks, for instance, invoke knowledge claims regarding the types of subjective experiences that the victims might have undergone. The negotiability of such knowledge claims is typically limited to the victim’s response to objective physical circumstances that all participants in the discussion are more or less assumed to be familiar with: a war may have traumatized its victims, but the war did happen and most individuals can be assumed to have a reasonably accurate conception of what a tragedy such as war might entail from a victim’s perspective.

Electrosensitive individuals, in contrast, often face the daunting task of re-objectifying victimhood before meaningful communication can take place. As the condition may often be regarded as psychosomatic, it is the victim of EMFs fleeing from work or family who has to

convince others of her superior claim to victimhood, as the individuals who are left behind may also feel unjustly abandoned. In the absence of a universally appealing narrative to justify such drastic actions, the victim's story is often reduced to a tragic experience without a tragic event, a tragedy caused by the absence of tragedy. If the victim had been subject to a verifiable, politically correct form of socially objectified misfortune, her claim to victimhood would be uncontroversial, which would in turn eliminate the social inconvenience of having to justify drastic self-protective actions that may have profound implications also for other people. Yet the absence of such a legitimating narrative renders any self-protective actions undertaken by an electrosensitive individual suspect of inconsiderate selfishness at best and outright lunacy at worst. Under asymmetric information regarding the specifics of a tragic event, the incidence of the tragedy cannot be negotiated in a way that would permit the healing process to begin. The real tragedy manifests itself in the socially underspecified nature of the tragic event rather than its immediate human toll.

### **The Silent Spin: A Rhino Theory of EMF Health Risks**

At first sight it might seem like the sufferers should have little difficulty to find at least some support for their cases in the scientific literature. After all, EMFs have been recognized as

a potential health hazard at least since the 1930s (e.g. Liebesny, 1935) and the symptoms attributed to electrosensitivity have been known for decades in the technical and general medical literature (e.g. Marha et al, 1971) – albeit apparently not so in psychiatry despite its often heroic claims to superior diagnostic capacities when it comes to electrosensitivity. One psychiatrist expresses the ethical concern for the expansionist tendencies of his discipline as follows:

I have for a long time been intrigued by the extraordinary use of psychiatric *causal explanations* for illnesses that not only go with predominantly somatic symptoms, but also lack any basic similarity to known mental disorders ... We have here a possible ethical problem. If physicians in general were in the habit of thinking independently and, in appropriate circumstances, were willing to show civil disobedience, problems like these would never have to arise ... Earlier examples of abuse of psychiatry in Nazi Germany and the Soviet Union unfortunately show that physicians are no more upright than others in the face of signals from people they regard as their superiors. The herd instinct may even be stronger ... than among people in general.

(Dalén, 2003, original emphasis)

and points out one of the root causes of the profound scepticism that many sufferers profess towards conventional medicine:

Many doctors would never let themselves be caught with woolly ideas about the possible causes of cancer, multiple sclerosis, or cardiovascular diseases. But just mention the word somatization and they will feel free to engage in uncritical speculation ... As a psychiatrist, I have to say it is rather distressing to witness how unconcernedly certain colleagues are abusing psychiatry, allowing other interests than those of the patients to take precedence (ibid.).

Furthermore, even the most cursory review of the contemporary literature on the biological impact of EMFs hardly dissipates speculation on the potential health consequences of exposure (e.g. Nilsson et al, 2005).

Yet the pursuit of an objective conception of risk can be a complex affair when industries and governments may perceive the obfuscation of such risks to be in their best interests. As one observer put it, “[p]romoting no-effect studies has long been part of their strategy to keep a lid on the microwave-health controversy” (Microwave News, 2006: 1). Such strategy could, of course, work only if negative studies are somehow perceived to “cancel out”

positive results. The logic behind such methodological predispositions has been illustrated through the following anecdote: “ten Victorian explorers return from Africa. Five report seeing rhinos, five say they saw no such thing. Should they have concluded that rhinos did not exist? Was the evidence ‘uncertain and ambiguous’ was ‘more research required?’” (H.e.s.e., 2007).

While reports of the EMF-illness rhinos have been plentiful ever since the introduction of man-made EMF sources, the number of eyewitness accounts has exploded since the widespread dissemination of mobile communication networks starting in the 1990s. Until the early 1990s the prevalence of electrosensitivity was typically estimated at less than 1% of the population. Extrapolating from the explosive growth rate, one study estimates that in some areas 50% of the population might be electrosensitive by 2017 (Hallberg and Oberfeld, 2006). In other words, should the rhino theory of EMF health risks survive for another decade, by 2017 there might no longer be enough healthy individuals available to “cancel out” the positive findings of the majority of the population.

The political environment might not be as hostile to the EMF victims’ struggle for freedom of movement – currently limited by the absence of low-EMF areas – and a tolerable living environment as some of their current living conditions and life stories might suggest. A staggering 76% of Europeans believe that mobile phone masts harm their health, while the corresponding figure for mobile handsets is 73% (The European Commission, 2007: 4). An

intriguing aspect revealed by the survey involves the apparent non-correlation of knowledge on EMFs with standard measures of scholastic aptitude. Finland, for instance, has consistently scored in the top of international comparisons of the quality of education, often serving as a model on “learning for tomorrow’s world” (OECD, 2003). Yet when it comes to knowledge on EMFs, Finland is in the bottom of the EU with only 56% of the population capable of identifying mobile phones as a source of EMFs and an alarmingly low recognition - 24% and 14%, respectively – of wireless computer networks and anti-theft devices as potential sources of EMFs (The European Commission, 2007: 9). In spite of such lack of factual knowledge, the Finns give the highest mark in the EU for the quality of information provided by the public bodies. 45% of the population is satisfied with the information they receive about potential health risks linked to EMFs, while 40% believes that public bodies act effectively to protect them from potential health risks linked to EMFs (ibid: 15, 29). The results suggest that the WHO’s recommendation of providing “appropriately targeted and balanced information” (WHO, 2005) may indeed be on the mark, albeit both the “appropriate targets” and the “balance” of such information might differ from the ones that it originally may have had in mind.

Perhaps not surprisingly, many victims remain unimpressed by the official regulatory and information dissemination policies, often perceived as amounting to just “another episode in ‘[s]ee, we are doing something about this,’ while nothing is done” (Firstenberg, 2006).

Suggestions that the prevailing policies are causing “slow death in the form of various radiation injuries” (Wahlbeck, 2007, translation by the author) are not unusual. Another articulation of a similar concern accuses the government of involvement in “the same deplorable dealings as Nazi Germany, namely a large scale experiment with people” and goes on to wonder when the UN is going to “arrange a conference dealing with the holocaust for all those whom the IT society, in the true spirit of a stock market frenzy, have destroyed” (Mimers Brunn Kunskapsförlaget, 2004: 136). Many remain convinced that a significant reduction in the overall radiation levels is only a matter of time as knowledge of the adverse health effects spreads, but doubt their own survival until that moment (e.g. Nilsson et al, 2005: 264).

### **Coping with Asymmetric Tragedies: Lessons from Nuremberg**

Any potential coping mechanism for asymmetric tragedies would thus have to confront three distinct but interrelated challenges: the victims’ quest for recognition and justice, the potential skepticism that may manifest itself elsewhere in the society, and the apparent inability of the prevailing knowledge production and dissemination mechanisms to communicate the current state of knowledge and the issues at stake to the general population. As nothing can ever be proven to be “safe” (e.g. Dendy, 2000: 1782) and research into causes in the

medical sciences is widely perceived as “far too difficult” (Dalén, 2003), the proposed coping mechanisms for asymmetric tragedies cannot ever expect to rely on science to conceal the essentially political nature of any decision that permits ongoing human experimentation. Nonetheless, it is often forgotten that the humanity has already had to confront – and solve, no matter how imperfect or incomplete that solution might be – the questions of good scientific conduct and liability in case of experiments with uncertain medical implications for the participants.

The Nuremberg Code – designed for medical experiments by the Nuremberg Trials in the aftermath of World War II but potentially applicable to any form of experimentation involving similar ethical and moral issues – defines a set of humanitarian principles for experimentation which might induce physical or mental harm to the subjects. For instance, the subjects’ informed consent based on sufficient knowledge and comprehension of the subject matter is essential. During the course of the experiment the human subjects should be able to discontinue the experiment at any time, and the organizer should in any case do so “if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required of him that a continuation of the experiment is likely to result in injury, disability, or death of the experimental subject” (U.S. Government Printing office, 1949). No experiment should also be conducted “where there is an a priori reason to believe that death or disabling

injury will occur” (ibid.), with the possible exception of cases where the experimenters themselves also serve as subjects.

The application of the Nuremberg code to the forced human experimentation with EMF exposure can be broadly summarized as follows. Science does not mandate that any individual should agree to any amount of man-made EMF exposure at all. Should the experimenters – the largest stakeholders of the major EMF emitters in the industry, politics, regulatory agencies and the research community – deny the subjects the possibility to terminate the experiment on their part at any time, the experimenters are in breach of the Nuremberg Code and liable for their actions irrespective of any actual harm suffered by the subjects. Similarly, a failure to communicate all relevant information pertaining to possible health risks to the subjects cannot be justified based on the experimenters’ own interpretation of such information. Finally, if the current international exposure standards indeed “provide ample margins of protection to all members of the population” (Mobile Manufacturers Forum, 2005: 3), one would expect such knowledge claims to be backed by the continuous voluntary exposure of the experimenters to the most damaging forms of EMFs, whether the maximum allowed power levels emanating from all conceivable man-made EMF sources or the most harmful window effects once they have been identified through extensive experimentation.<sup>10</sup>

Irrespective of the practical feasibility of its continued implementation in a world

dominated by the pursuit of power rather than justice, a more widespread awareness of the Nuremberg Code might provide precisely the kind of focal point for the social negotiation of asymmetric tragedies that would allow the healing process for the victims to begin. The Nuremberg Code re-objectifies victimhood by shifting the burden of proof from the victim to the experimenter: instead of subjecting the victim to the unreasonable task of proving the harmfulness of the experiment, the experimenter will have to produce evidence of the victim's informed consent and ability to terminate the experiment on her part at any time. The Nuremberg Code also helps to establish clear ethical and moral principles to deal with questions of liability and to assure the victims that no unnecessary risks will be taken that could lead to similar tragedies in the future. Under the moral authority of the Nuremberg Code the perpetrators of forced experiments can be held accountable regardless of temporal or jurisdictional constraints, which provides a powerful mechanism favoring the precautionary principle in the first place. Finally, a more widespread awareness of the Nuremberg Code might also shift the public sympathies decisively towards the victims. A refusal by any politician, company executive, researcher or regulatory bureaucrat with significant interests in the wireless communication industry to submit to the most harmful forms of experimentation would effectively amount to rejecting the notion that the same standards of decency that the Nazi doctors should have adhered to in order to avoid their conviction in Nuremberg also apply to the

specific individual in question. If the experimenters themselves refuse to keep transmitters of various communication standards on their ears 24 hours a day and to be irradiated by masts inside their offices and bedrooms at the maximum permitted exposure levels, perhaps the public might start questioning the competence of the prevailing economic, political, regulatory and knowledge-producing institutions with the same ridicule and fervor that has often been applied to the EMF victims' causal explanations for their personal tragedies.

### **Conclusion**

Any potential coping mechanism for asymmetric tragedies must solve three interrelated challenges: the victims' claims for recognition and justice, the uncertainty and potential skepticism related to the victims' construction of the causal explanations for their personal tragedies, and the institutional failures related to knowledge production and dissemination. A more widespread awareness of the Nuremberg Code might help to solve these challenges by providing a focal point for the social negotiation of the tragic event and the human agencies involved that allows the healing process to begin. Although the Nuremberg Code does not cure the EMF victims, it does re-objectify their victimhood, establish clear guidelines for accountability, and reduce the likelihood of similar EMF-induced personal

tragedies occurring in the future due to the incentive mechanisms favoring the precautionary principle. As the mother of the 21-year old contemplating assisted suicide in Switzerland notes, governments can currently neither cure the sufferers nor let them die with dignity. If the current ivory towers of the largest EMF stakeholders are not high enough to see any rhinos in the horizon, perhaps the ethical and moral guidance of the Nuremberg Code could sharpen their vision.

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## Notes

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<sup>1</sup> Electrosensitivity – sometimes also known as electrohypersensitivity – is recognized as a functional impairment in Sweden.

<sup>2</sup> Not all individuals are, of course, equally exposed. To illustrate some of the current biases in the incidence of EMF exposure, in a nation where the prime minister had “no idea” how to use a mobile phone until leaving the office in June 2007 (Mulholland, 2007), one in three children – some as young as five – have one (Derbyshire, 2005), some of them apparently at risk of developing repetitive strain injuries due to excessive texting (Womack, 2005). Anecdotes of industry spokespersons adopting radically different stances from the publicly professed ones when masts are planned near their own homes are also not uncommon.

<sup>3</sup> The current exposure limits assume that human beings are affected by EMFs precisely in the same way as dead bodies or inanimate matter: no other effects except heating of homogeneous bodily tissue (dead or alive) may occur. The current regulatory approach derives from toxicology, which is hardly an appropriate reference as EMFs are not alien to living organisms, but play a fundamental role in their organization and control (Hyland, 2001: 19-22)

<sup>4</sup> Such window-effects may explain both cross-sectional variance in sensitivity between different individuals and any potential changes in the sensitivity of the *same* individual across time, as non-thermal effects depend on the prevailing physiological state of the living organism under exposure.

<sup>5</sup> The potential relevance of the Nuremberg Code to the forced EMF exposure has been pointed out by Hyland, 2001.

<sup>6</sup> In case provocation studies are used for diagnostic purposes, the recruitment methods may have a significant impact on the results (e.g. Schröttner et al., 2007) and it is not uncommon to see genuinely electrosensitive individuals being actively discouraged from participating in such studies due to ethical and methodological concerns (e.g. Mast Sanity, 2007). The former Nokia PR manager, Harry Mildh, once quipped that “no-one is too insignificant to make bribing her unworthwhile” (quoted in e.g. Wiberg, 2006, translation by the author). Although the quip is already somewhat dated, it may still accurately capture one factor behind some sufferers’ disillusionment with any potential methodological or organizational biases or conflicts of interest in the process of defining the concept of electrosensitivity. While electrosensitives are a heterogeneous group with a wide variety of interests and personal motivations, few are likely to be blind to the political implications of who qualifies as an electrosensitive for provocation studies, is perceived to represent the voice of the sufferers in the media, or formulates the policies of self-aid organizations.

<sup>7</sup> For instance, active research on how to produce “death by heart seizure or by neurological pathologies resulting from breaching of the blood-brain barrier” in animals and “metabolic disorders” or “sounds and possibly even words which appear to be originating intracranially” in humans through the use of EMFs has been reported at least since the 1970s (Hyland, 2001: 16).

<sup>8</sup> The “sensitization” view is supported by both the explosive growth of the number of sufferers (e.g. Hallberg and Oberfeld, 2006) and the emergence of electrosensitivity clusters among individuals who share similar exposure histories due to common occupational or residential settings, for example.

<sup>9</sup> The relatively marginal status of much of the media in which personal accounts of electrosensitivity are often presented has sometimes been taken as an indication of the need to question the existence of the entire phenomenon. For the sake of such skeptics, none of the conclusions or proposals presented in the final section depend upon any specific victim’s ability to conclusively prove a connection between EMF exposure and her personal tragedy – or perhaps merely to get information that might convince most disinterested observers published in more powerful media outlets. In fact, the more skeptical one may be towards the alleged causal relation between EMF exposure and the victims’ conditions, the more applicable the proposed

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solution outlined in the final section might be.

<sup>10</sup> For other environmental hazards potentially involving the problem of asymmetric information, such as chemicals – which, incidentally, cannot be ruled out as a potential factor contributing to the onset of electrosensitivity – the implementation of similar experiments would be significantly easier as compliance could be demonstrated by simple blood tests confirming the presence of the specific amounts of chemicals in the subjects' bloodstreams.