

# **Overloading of Towns and Cities with Radio Transmitters (Cellular Transmitter): a hazard for the human health and a disturbance of eco-ethics**

Karl Hecht, Elena N. Savoley

IRCHET International Research Centre of Healthy and Ecological Technology  
Berlin – Germany

## **1. A Very Serious Warning 36 Years Ago**

“The electromagnetic radiations emanating for radar, television, communications systems, microwave ovens, industrial heat-treatment systems, medical diathermy units, and many other sources permeate the modern environment, both civilian and military.”

“Unless adequate monitoring and control based on a fundamental understanding of biological effects are instituted in the near future, in the decades ahead, man may enter an era of energy pollution of the environment comparable to the chemical pollution of today.”

“The consequences of undervaluing or misjudging the biological effects of long-term, low-level exposure could become a critical problem for the public health, especially if genetic effects are involved.”

These quotations are excerpts from the US government report “Program for Control of Electromagnetic Pollution of the Environment”, which was published in December 1971. The government report was drafted starting in December 1968 by an expert group made up of nine people, “The Electromagnetic Radiation Management Advisory Council”. “The President’s Office of Telecommunications Policy” issued the order. This report was an urgent warning for the future.

## **2. Today (2007): Ignoring This Warning and Irresponsible Deception**

About 36 years have passed since the publishing of this report. Unfortunately, this urgent warning, which is scientifically well-founded, is currently not taken seriously. The beauty of landscapes and cities are spoiled with “forests of radiant radio antennas” in order to serve a new addiction of people: telecommunication. From this unethical, environment-disfiguring antenna forest, people are continuously bombarded by invisible, imperceptible, health-damaging, stressing, high-frequency, electromagnetic radiations.

As predicted 36 years ago in the US government report, our planet today is more “contaminated” by “electronic smog” than with the chemistry that already heavily strains people. Those responsible have unfortunately still not considered a possible double strain of these two harmful factors.

The telecommunications and microwave industry even contends that these high-frequency electromagnetic radiations are not harmful for people’s health. That is irresponsible deception. Facts support the opposite.

## **3. Radio Wave or Microwave Sickness Known for 75 Years**

Seventy-five years ago in August 1932, the German doctor Erwin Schliephake published scientific data in the German Medical Weekly about radio transmitter-induced “microwave” or “radio wave sickness” with the following symptoms: severe tiredness and fatigue during the day, fitful sleep in the night, headaches to the point of intolerability, and high susceptibility to infection.

These symptoms, which are also observed in neurasthenia (enervation), were not to be traced back to the thermal effects, but rather to the athermal effects of high-frequency

electromagnetic radiation, according to Schliephake's view. The health-damaging effect of high-frequency electromagnetic and electric radiation was reproduced in thousands of investigations.

This microwave sickness, induced by athermal high-frequency EMF radiation, was verified by the scientific work of the Russian author Zinaida Gordon from the Moscow Institute for Industrial Hygiene and Occupational Diseases, in 1966 in the Russian language and in 1970 in the English language, among many others. She examined more than 1,000 workers who worked at radio installations, electric utilities, radar stations, etc., over the duration of 10 years. She established the following symptoms:

- daytime tiredness
- loss of productiveness
- sleeplessness
- headaches
- cardiovascular regulation changes of various types
- neurovegetative disorders
- neurosis
- depressions
- hyperactivity and inner agitation

According to Prof. Gordon [1966], the symptoms strengthened with increasing duration of exposure, and sensitivity to the microwave radiations increased.

Reports from Poland were presented by Baranski (1971, 1967, 1966) and Czereski et al. (1972, 1964) about:

- microwave syndrome and
- chromosome damage, and by

Minecki [1967, 1965, 1964, 1963, 1961] about:

- psychoneurovegetative disorders
- neurasthenia
- chromosome damage
- embryonic development disorders

after the chronic influence of weak high-frequency fields.

Karel Marha, from the Institute for Industrial Hygiene and Occupational Diseases Prague (1968-1971), reported about analogous symptoms, like they had already been described by the others. He stressed, though, that the brain functions are especially sensitive to high-frequency electromagnetic radiation.

In the USA from 1955 until 1969, eleven large conferences took place under the title "Microwaves – Their Biologic Effects and Damages to Health". The so-called Richmond Conference in 1969 presented such overwhelming facts that the above-mentioned government report had to be compiled. Besides the microwave symptoms mentioned, gastric bleeding, leukemia, chromosome breakages, cancer, and clouding of the eye lenses were also observed by doctors in the USA.

Already in November 1958, the "Security Measures for Persons in the Range of Microwave Generators" was instituted by order of the Minister of the Soviet Public Health Service.

#### **4. Eastern Threshold Value Around Three Orders of Magnitude Lower than Western Threshold Value**

The threshold value was established at the value of  $0.01 \text{ mW/cm}^2$  for full-time contacts with high-frequency electromagnetic radiation, based on research results in Russia (the former Soviet Union).

The threshold value was bindingly stipulated at  $10.0 \text{ mW/cm}^2$  in the USA at the 1955 conference at the Mayo Clinic in Minnesota. With the establishment of NATO, this threshold value became binding also for Western Europe. This difference of three orders of magnitude between the threshold value in the East and the threshold value in the West still exists today. In the East, electrical smog is taken more seriously.

The annual report of the national Committee of Russia for non-ionizing radiation of the year 2002 addressed the following themes among others:

- "Emotional stress and EMFs" (electromagnetic fields),

- “Electromagnetic Fields and Cancer”,
- “The State of Health and Work Conditions of Workers in Civil Aviation Who Operate Radar, Navigation, and Communication Equipment”,
- “The Functional Brain Hemisphere Asymmetry Under the Influence of Magnetic Fields”.

They adopted the following recommendations for the protection and safety from mobile telephone use: mobile telephones should not be used by children under 18 years old, pregnant women, patients with neurologic diseases, neurasthenia, psychopathy, neurosis, sleep disorders, memory loss, or epilepsy syndrome.

Basically, it is recommended to keep mobile phone conversations as short as possible and in no case to have a conversation longer than 15 minutes.

## **5. Research into the Findings in the Russian-Language Scientific Literature Shocked German Authorities**

Prof. Dr. Karl Hecht and his associate Hans-Ullrich Balzer were commissioned in 1996 by the German Federal Institute for Telecommunication to carry out research on the Russian technical literature about the health-damaging and biological effect of high-frequency electromagnetic radiations from the years 1960-1996. In 1997, the authors turned over the report, which was based on 878 scientific works, to the sponsor. The data was so overwhelming for the German conditions that the report immediately disappeared into the archive.

## **6. The Duration of the Effect of High-Frequency Electromagnetic Radiation – Decisive for Health Damage**

Next we would like to mention a few important facts of this report.

The duration of the effects proved to be a very decisive factor for the health-damaging effect of the EMF. A three-phase progression in the development of the microwave syndrome was proved.

### **First: Initial Phase**

In the first 1-3 years, predominantly a sympathicotonic deflected initial phase was predominantly demonstrated, which proceeded in three sub-phases:

**First Subphase** = Pronounced sympathicotonia (hypertonia) activation phase. This phase is comparable with the alarm phase of the general adaptation syndrome of Selye and with the unspecific activation according to Lindsley [1951], Lacey [1967], and others.

**Second Subphase:** Performance-promoting, increased sympathicotonic reaction phase in the sense of a eustress reaction or an emotional activation [Lindsley 1951]. According to Selye [1953], it is to be interpreted as a resistance phase.

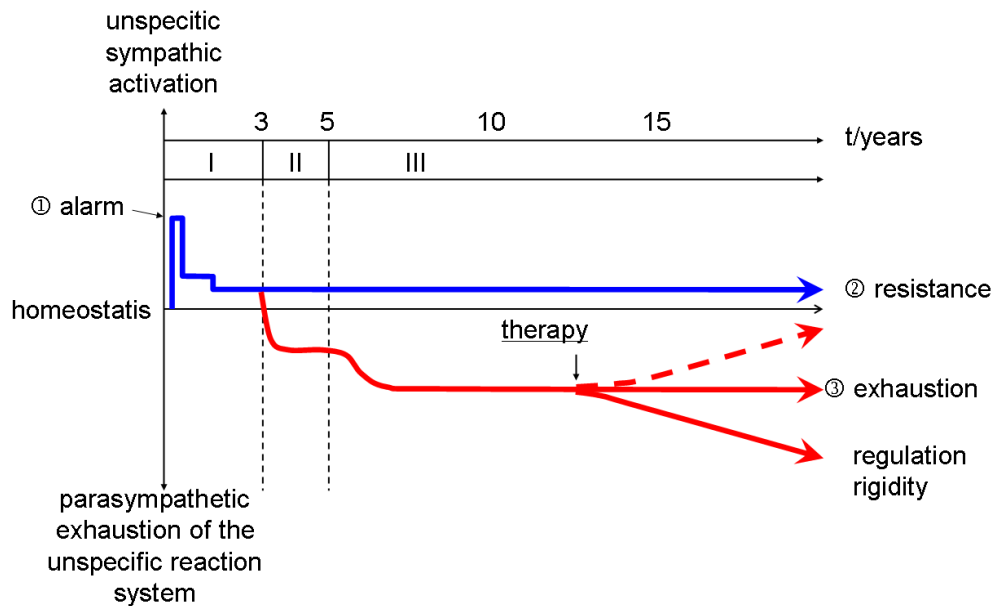
**Third Subphase:** Adaptive, balancing phase with less sympathicotonic deflection. The body functions are still located in the range of homeostasis, so normal values are measured, although latent, intermittently appearing ailments may already express themselves. This phase, too, is still to be assigned to the resistance phase, according to Selye [1953].

### **Second: Pre-Morbid or Early Phase of a Chronic Disease**

After 3-5 years of influence duration, weakly visible and/or strengthening pathologic developments of neurasthenic basic symptoms with vagotonic reaction tendencies, sleep disorders, and daytime tiredness appear.

### **Third: Exhaustion Syndrome**

Pronounced neurasthenic symptoms with increasing pathologic lapses of the regulation system, neurotic and neurasthenic symptoms, sleep disorders, daytime tiredness, and general exhaustion are dominating appearances. Effect duration > 5 years.



**Figure 1.** Schema of the stages of illness development after long-term influence of EMF radiation in comparison with the stages (①, ②, and ③) of the General Adaptation Syndrome according to Hans Selye [1953]. I = activation phase, A = activation (excitement), B = positive stimulation, C = adaptive phase; II = latent, weak pathologic development; III = strong pathologic development. Based on the findings of a literature review [Hecht und Balzer 1997].

## 7. Essential Findings after Long-Term EMF-(EF-)Effect

Objectively gathered findings:

- neurasthenia, neurotic symptoms
- EEG changes (decay of the alpha rhythm into the theta rhythm and isolated delta rhythm)
- sleep disorders
- deformation of the biologic rhythm hierarchy
- disorder in the hypothalamohypophyseal adrenal cortex system
- arterial hypotonia, more rarely arterial hypertonia, bradycardia, or tachycardia
- vagotonic displacement of the cardiovascular system
- hyperfunction of the thyroid
- resting tremor of the finger
- potency disorders
- hair loss
- digestive function disorders
- tinnitus
- slowing down of the sensory motor system
- increased susceptibility to infection

Subjective Complaints:

- exhaustion, lack of energy
- weakness of concentration
- daytime tiredness
- headaches
- quick tiring under stress
- lightheadedness
- constriction of physical and mental ability
- concentration and memory decline
- night sweats
- spontaneously occurring excitability from hypotonic reaction situation, especially in the case of external pressures
- cardiac pain, heart racing

[Rubzowa 1983; Rakitin 1977; Drogitschina et al. 1966; Gordon 1966; Drogitschina und Sadtschikowa 1965, 1964; Piskunova und Abramowitsch-Poljakow 1961].

## **8. Factors That Can Influence the Development of an Illness through Athermal/Biologic, Non-Ionizing EMF Radiation**

Duration of Influence: At the earliest, pathological appearances appear after ca. 3 years; duration of influence > 20 min. daily, 5x per week has no pathological consequences.

Age: Younger organisms show greater electromagnetic sensitivity than older ones; children especially must be protected.

Individual State of Health Electromagnetic Sensitivity: decreasing healthiness increasingly raises electromagnetic sensitivity

Status of the Elektrolyte/Mineral Balance: lack of minerals and toxic stress increases electromagnetic sensitivity

Additional stressor effects, e.g. noise, other radiations, conflicts, and stress, increase the risk to come down with microwave syndrome.

Active Ingredients and Medications: stimulants, e.g. caffeine, can increase electromagnetic sensitivity.

## **9. What Good Are Short-Term Research Projects?**

The research projects of today's cell phone, microwave, and telecommunication industry run for at most one year, very rarely two years. According to the state of knowledge shown, no harmful effect of the high-frequency electromagnetic radiation can be established at all. How the factor of the duration of influence is handled in these research projects should be explained with an example of a BUWAL study (BUWAL = Switzerland's Department of the Environment).

The findings of a table of scientific works regarding the investigation of the duration of effect of high-frequency microwave radiations on various function systems or states of health, which one of us extracted and compiled from the tables of the BUWAL document, shows that among 129 analyzed scientific works or studies, an immediate effect (up to 1 h) was investigated in 44% of them. The duration of effect was tested for the short-term (up to three days) in 22.5% of them and for the middle-term (3-30 days) in 11% of them. Only 22.5% investigated the duration of effect of high-frequency microwaves longer than a month.

It must be added that cardiovascular, hormone system, and immune system symptoms of radio-wave or microwave sickness are cited in the BUWAL documentation in the form of headaches, sleep disorders, general condition, EEG changes, and information processing, which the authors could not explain with their one-sided conceptions of the thermal effects of high-frequency electromagnetic radiation.

With such erroneous research approaches, of course no health-damaging effect can be found. Such research projects are also completely unnecessary, because the athermal, health-damaging effect of high-frequency electromagnetic radiation has been known for 75 years and has been confirmed again and again during this time in more than a thousand investigations, whenever serious principles of research were guaranteed.

## **10. The Following Definitions Are Cited For Better Understanding of the Effect of High-Frequency Electromagnetic Radiation on People and Corresponding Interpretations**

### **10.1 Health Definitions**

Various views have existed about the term “health” for 60 years.

**Conventional medicine defines health as the exemption from organic, verifiable sicknesses.**

Such a definition does not correspond to the realities. The so-called “functional syndrome” or somatoform disorders (ICD 10F) are not accounted for in it.

In the founding preamble of WHO, health is defined as follows: **“Health is the condition of the complete physical, mental, and social well-being and not the exemption from sicknesses and ailments.”** In the Ottawa Charter of 1986, this definition was extended as follows:

**Health is to be understood “as a satisfactory measure of functional capability in physical, mental, social, and economic regards and the ability to take care of oneself until an old age” [WHO 1987].**

### **10.2 Bioactive Effect and Health Damage**

The terms health damage, bioactive effect, or bioactive reaction are frequently used without being sharply delimited from one another, thus leading to confusion. Therefore, a short definition for clarification:

A bioactive effect is mostly an unspecific reaction of the organism to outside influences of various natures (physical, chemical, social, bacterial, viral). It must be differentiated:

- if this reaction is temporary and the homeostasis (norm) recuperates through a reversible transient effect; that is an individual’s normal adaptation reaction, or
- if the changed reaction remained temporarily (e.g. several days) and then “normalized” again through a reversible transient effect. That would be equivalent to a health disorder in which the foreign influence was effective as a trigger, or
- if the triggered changed reaction involves problems, losses of abilities to do things, and quality of life for the long-term and is not reversible. That is damage to one’s health.

Under health damage, we thus understand enduring or intermittent irreversible changes of the physical, mental, and social functional capability of the person, which can arise from noxious influence developed over the short-term or long-term, or also from intense, short-term influences (e.g. shock). (Noxa = pollutants, harmful agents, pathogenic causes)

## **11. Animals and Plants are Also in Danger**

Animals and plants are also very negatively influenced by this high-frequency electromagnetic radiation. In the case of cows, reduction of the milk yield and malformed offspring have been proven. Graver for humankind could be the death of bees observed everywhere due to the electro-smog contaminated environment. When the bees are dead, people not only have no more honey, but also no more fruit, because pollination of the flowers is impossible without bees. Humankind stands today before an important decision: further development of the technogenic pollution of the environment or finding our way back to Nature.

Let us remember the report of the Club of Rome [1983] in which there is the following statement: “The pressure of the facts is so great that we must either change our way-of-life or disappear from the face of the Earth.”

## **Literature**

The literature can be requested from the author or from the internet: [www.hese-projekt.org](http://www.hese-projekt.org)