

Bulgaria

Report on EMF Activities

10th International Advisory Committee on EMF

June 2005

Research activities

A. Ongoing projects

National Action Plan in the Field of Environment and Health

Funds: Ministry of Health

This is multiyear project that includes a part “*Non-ionizing radiation*”. It corresponds to international requirements and contracts signed by the European Union in the field of environmental health.

The activities in 2004 in the field of NIR cover three major topics as follows:

- *Developing a legislation for human exposure to EMF for the general population.*

This part of the project is completed. A new draft ordinance was developed, being submitted for comments to the stakeholders.

- *Developing a national database on sources of NIR: ELF, RF, microwaves and optical radiation; exposure assessment and control of NIR.*

Database consists mainly of base stations for mobile communication. A number of about 1400 sources are included in the database. All of them are measured, evaluation of the safety zones around the sources has been done.

- *Providing a national system for risk communication and risk management in the field of EMR exposure.*

A strategy for risk communication with the Bulgarian society in the field of EMF is developed. The WHO brochure “Establishing a dialogue on risks from electromagnetic fields” is translated into Bulgarian language and is expected to be soon in press.

The Precautionary Principle is discussed to be included into the legislation.

Evaluation of the Effect of RF EMR on the Cardiovascular System, and on the Melatonin Secretion in Medical Personnel.

Funds: Ministry of Education, Science and Technologies

A methodology for exposure assessment in physiotherapy has been developed. Using questionnaires, cardiovascular and biochemical, immunological methods (stress hormones, melatonin and others), high level of health risk is found out among the medical personnel, especially studying the cardiovascular system. No changes in melatonin secretion is found.

B. Ph. D. theses:

Mobile communication. Dosimetry, exposure and risk assessment

Study, exposure assessment and exposure limits for UV radiation for the working environment

Meetings took place in Bulgaria

Ninth National Conference on Biomedical Physics and Engineering, with international participation, 14-16 October 2004, Sofia, Bulgaria. (with special session “Non-Ionizing Electromagnetic Radiation”).

XXVI Coloquium “Physics in Protection of Human and Environment”, Topic: “Transport and Communications. Modeling and Information Processing” (with a part of “Risk communication”).

A policy for future research:

Project supported by the **PHARE 2002 Project BG 0201.12 “Feasibility Study”:**

Strengthening the National Conformity Assessment System:

NP Feasibility Study for Technical Assistance for CABs and Supply for Equipment for CABs.

Our participation consists in creating certification labs for different kind measurements and evaluation of machines, toys, personal protective measures, etc. in the field of EMF human exposure. The European Directives in the field will be implemented.

Projects applied for funds from the **Ministry of Science and Education** for two-year period, starting from 2006:

Study, exposure assessment and exposure limits for UV radiation in the working environment

Human exposure assessment to EMF from mobile communication systems

A survey of the problem of “electromagnetic hypersensitivity” in Bulgaria

Project applied for support to the **MATRA Pre-accession funds of the Netherlands:**

Harmonization of the Bulgarian legislation concerning EMF human exposure with EU recommendations. Implementing the precautionary principle. Risk communication.

Concerning the **Meeting for finalizing the harmonization process in the East countries, planned to take place in Bulgaria:**

We intend to apply for support to WHO, ICNIRP, EOARD, EMF-NET and MATRA-flex of the Netherlands.

Areas of public concern and national responses:

Two GSM operators work in Bulgaria (the third is analogue one). ***The third GSM operator is in implementation***, and it should cover the whole country ***in a year***.

The public concern about the mobile communication systems ***is arising widely***. There are cases bring to trial. Fortunately, ***our intervention in the field of communication with the population decreased the suspicion to the scientists, exposure limits and to the administration.***

List of publications and presented papers in different forums:

Israel M. - *A ‘painless’ way for the candidates countries for the European Union to accept the international recommendations for EMF human exposure*, International Conference on EMF: From

bioeffects – to legislation, November 8-9, 2004, Ljubljana, Slovenia.

Israel M., V. Zaryabova – *Cases of Hypersensitivity in Bulgaria. Program for investigation, Workshop Electrical Hypersensitivity*, 25-26 October 2004, Prague.

Israel M., P. Tschobanoff - *Method for Evaluation of the Exposure to Non-Ionizing Radiation on Personnel in Physiotherapy*, NATO Advanced Research Workshop, The Mechanisms of the Biological Effect of Extra High Power Pulses, 3-5 March 2005, Yerevan, Armenia (in press).

Israel M., P. Tschobanoff - *Evaluation of the individual EMF exposure on the personnel in physiotherapy*, NATO Advanced Research Workshop, The Mechanisms of the Biological Effect of Extra High Power Pulses, 3-5 March 2005, Yerevan, Armenia (in press).

Israel M., V. Zaryabova – *International Project “Electromagnetic Fields”. Strategy and development*, Proceedings, Ninth Nat. Conf. on Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.91-97.

Zaryabova V., M. Israel, M. Ivanova – *Harmonization of the Bulgarian exposure limits to EMF with the European legislation*, Proceedings, Ninth Nat. Conf. On Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.98-103.

Shalamanova Ts., M. Ivanova – *An overview of legislation available to EMF exposure from mobile communication*, Proceedings, Ninth Nat. Conf. On Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.104-108.

Traykov L., A. Ushiyama, G. Lawlor, R. Sasaki, C. Ohkubo – *Frequency dependence of ELF EMF action on blood vessel diameter oscillations in the cutaneous*, Proceedings, Ninth Nat. Conf. On Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.109 - 116.

Ivanova M., M. Israel – *Effect of UV radiation on human health. Measures for human health protection*, Proceedings, Ninth Nat. Conf. On Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.117 – 122.

Grigorov N., M. Ivanova, M. Vatsov – *Nonionizing radiation at workplaces with magnetic resonance image devices*, Proceedings, Ninth Nat. Conf. On Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.123 – 128.

Grigorov N., V. Zaryabova, R. Petrova, M. Dimitrova – *Results of measurements of EMF around base stations for mobile communication in Bulgaria*, Proceedings, Ninth Nat. Conf. On Biomed. Physics and Engineering, 14-16 Oct., 2004, Sofia, p.129 – 134.

Halkova G., K. Vangelova, M. Israel – *Haematological indices in broadcasting and TV station operators*, Scripta periodica, 2004, 1, 44-49.

M. Ivanova, M. Israel – *Problems of Transboundary “pollution” from high voltage power lines*, Journal of Environmental Protection and Ecology, 2004, in press