

Geneva, 20 March 2003  
SDE/PHE/RAD  
WHO

**Application of the Precautionary Principle  
to Electromagnetic Fields (EMF)**

**CONFERENCE OF 24-26 FEBRUARY 2003  
IN LUXEMBOURG  
9.00 A.M. – 5.00 P.M. ROOM M6 (JEAN MONNET BUILDING)**

**RAPPORTEUR REPORT**

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**Morning**

- 09:00**      **Chairman's Opening remarks**      *Dr C Portier*  
National Institute of Environmental Health Sciences
- Welcome from the European Commission      *Dr M Seguinot*
- Meeting objectives: World Health Organisation:      *Dr M H Repacholi*
- 09:20**      Overview of the EC 2000 statement      *Dr H Belvèze*
- 09:40**      Strengths of the Precautionary Principle in general      *Dr D Gee*
- 10:00**      Weaknesses of the Precautionary Principle in general      *Dr M Tubiana*
- 10:20-10:45**      Coffee Break
- 10:45-11:00**      Evaluating and choosing policy options in environment and health:  
Role of the Precautionary Principle      *Dr M Martuzzi*
- 11:00-11:20**      Arguments against using the Precautionary Principle for EMF      *Dr K Foster*
- 11:20-11:40**      Arguments for using the Precautionary Principle for EMF      *Dr R Neutra*
- 11:40-12:00**      Discussion panel

**Afternoon**

- 13:30-15:30**      Pre-requested presentations
- 15:30-16:00**      Coffee break
- 16:00-16:20**      Working Group draft on the Precautionary Principle      *Dr L Kheifets*
- 16:20-17:20**      Discussion panel

## **Rapporteur Report**

These are advantages in having an American chair an international meeting. Americans smile a lot which keeps people in a good humour even when they are being told their time is up and their microphone is switched off. Also Americans are very sparing with words. They can say in five words what would take twenty-five in Ireland. So when Chris Portier introduced me as Rapporteur with the words “In case you want to get him” I knew it was important that I began by acknowledging the great job he did. He guided our meeting through a huge agenda, allowed everyone to speak who wanted to speak, kept to the timetable, and did all this without a single international incident. Chris, you are to be commended.

The organisers of our meeting were the European Commission and WHO. Dr Marc Seguinot of the European Commission opened the meeting with a warm welcome and closed it with a reminder that the powers of the Commission in the EMF area were constrained by the terms of the Treaty. In view of its current review by the Convention, now would be a good time to enlarge competencies given to the Commission in the public health domain.

Dr Belvèze of the Commission outlined how the Precautionary Principle (PP) became formally adopted into EU policy three years ago. It is now an important element of all the EU’s scientific, legal and political measures. Its application to EMF is one of the first major actions of the EU in extending the application of the PP to public health. The PP is nothing else than a policy decision to ensure that insufficient scientific evidence does not prevent the decision-maker from taking action when there is a strong perception of risk. The PP is seen as a Risk Management tool for the decision-maker. It is not a tool that can be applied separately out of this framework. Dr Belvèze saw the main guidelines in applying the PP to be proportionality, non-discrimination, and consistency. The guidelines also include an evaluation of the health benefits and the costs of action and lack of action. Finally there should always be scope for further review in the light of new scientific information. Dr Belvèze concluded his presentation with an impressive list of initiatives taken internationally to win support for the EU’s precautionary policy and encouraged the Working Groups to work on clarifying the PP guidelines to enable them be employed internationally.

The WHO, our other co-host, was represented in presentations by Dr Mike Repacholi, Dr Marco Martuzzi, and Dr Leeka Kheifets.

Dr Repacholi was up-front and personal. The WHO needs our help. The world is a risky and uncertain place. So why should we be surprised that science too has its uncertainties that makes it hard for us to assess risks. What do you do meanwhile? There are reports of biological effects of EMF at levels below the well-recognised standards and guidelines. WHO would now like to develop a framework and guidelines that would allow the application of the PP not only for EMF but also for WHO policy generally. It is not question of *whether* we apply it. It is a question of *how* we apply it. The ‘how’ is the challenge that faces the Working Groups. This was the point Dr Repacholi returned to several times during the discussion periods and in his closing remarks. He wants to put together a policy option for the PP. The

PP is seen as a key Risk Management tool that WHO would like to promote. Improving and revising the WHO's Draft PP Document is the main purpose of the next two days.

Dr Marco Martuzzi of the WHO's Regional European Office discussed the development of the PP. Where once the protection of public health involved studying the incidence of disease and identifying the exposures that could be contributing to it, we now had a much broader perspective. There was now interest in "upstream health determinants" (potential hazards whose effects might be latent). Additionally, all EU policies now endeavour to attain a high level of human health protection. This was where the PP came into the picture. Dr Martuzzi saw two different views being taken of the PP. Under the European Commission criteria it is a "rule" to be applied when faced with a concrete, often dichotomous decision. However others saw it as an "overarching" or basic principle to be applied throughout every step of policy formulation. These different views made it difficult to answer the question: "How much evidence is needed to trigger protective actions?" Dr Martuzzi advised us that the WHO's efforts to promote international discussion of the PP would continue at a major conference on environment and health planned for Budapest in 2004.

Before I deal with Dr Kheifets presentation I'd first like to deal with four papers that purported to take opposing views on the pros and cons of the PP in general and the application of it to EMF in particular. Although stimulating, the presentations and the presenters were much too polite and well mannered to indulge in the verbal battle some of us might have been hoping for. The activity was more counterpoint than Russian sabre dance Dr David Gee and Dr Maurice Tubiana squared off, respectively, on the strengths and weaknesses of the PP in general.

Dr Gee of the European Environment Agency has completed a major investigation into the use and non-use of the PP in 14 case studies. These include such well-known topics as asbestos, CFCs, the ozone hole, BSE and antibiotics in animal feed. From these case studies a number of problems were identified that had arisen from a misunderstanding of the PP. These problems included:

- 1) The huge difference between good science on the one hand and public policy based on good science on the other. Public policy involves many other things besides science.
- 2) The need to distinguish between "Risks" where we know the outcomes and the probabilities, "Uncertainty" where we know the outcomes but not the probabilities, and "Ignorance" where we have no knowledge of the outcomes nor therefore of the probabilities.
- 3) The different levels of proof required for different purposes. A lower level is adequate for the PP. A higher level is needed for scientific certainty.
- 4) The drive for scientific certainty leads to more false negatives (the exposure was dangerous after all).
- 5) The public wish to minimise false negatives and its greater tolerance of false positives (the exposure was benign after all).
- 6) The need to recognise the limits of cost-benefit analysis.

Dr Gees' position is that a sensible application of the PP will provide huge benefits to society and go a long way to help authorities.

If Dr Gee can be described as an enthusiastic supporter of the PP, Dr Tubiana adopted a much more cautious and sceptical approach. Dr Tubiana, while not totally opposed to the PP and precautionary measures, envisaged many problems. In some of Dr Gees' case studies, Dr Tubiana considered the problem wasn't the absence of scientific information but people ignoring evidence that was already before their eyes, were they to have looked. He saw the PP already blocking the further development of mobile wireless communication and GMOs and was therefore blocking economic and social progress. He was also concerned that tackling serious and well-known risks (smoking, obesity, car accidents) would remain underfunded while money was spent on putative risks. He gave an example of how in France the PP had interrupted vaccination against hepatitis B because of a fear that the vaccine could cause multiple sclerosis, although this was never demonstrated. He also gave a contrasting example where women insisted on having the contraceptive pill and HRT even though many endocrinologists had advocated a twenty-year delay in their use by the general public.

Dr Tubiana was also concerned that the PP will increase litigation because it strengthens the feeling that any risk is unacceptable and should be banned. Even the fear of litigation can lead to decision-makers taking decisions that are less concerned with protecting public health and more with avoiding the risk of being taken to court. A final point made by Dr Tubiana related to the problem of misinformation employed by activist groups to pressure authorities into taking actions against perceived risks. He made a strong plea that factual communication on risks associated with science and technology should have a major role in a society where deliberate risk amplification appears legitimate if it is for the protection of the environment. The public must be given objective information.

Dr Raymond Neutra and Dr Ken Foster of the took up cudgels on the question of the PP and EMF.

Dr Neutra provided arguments for precautionary measures and precautionary policy planning has been carried out under the auspices of the Californian authorities. He is not enamoured by the definition of the PP used in Europe. And he would rather use another name – the “Sufficient Certainty Principle” in place of the PP. His definition of the SCP is

*“The suitable degree of scientific certainty required by governments to pass from inactivity to requiring precautionary planning or cheap or expensive protective actions should not be fixed but should depend on the severity, magnitude, irreversibility and unfairness of the health or environmental threat.”*

He chose to defend the version of the Principle developed at the Wingspread (Minnesota) Conference in 1998. This is because it was a formulation that went beyond simple risk management. It recommends an initial scientific presumption of the existence of a hazard and implies a transparent “degree of certainty” approach to risk assessment. It also recommends an early precautionary review of alternatives to threatening

activities and not waiting for certainty to initiate action. Finally, it mandates meaningful stakeholder involvement.

Dr Neutra provided a tour of the application of

California's democratic procedures and the variety of interest groups with which they must contend and satisfy. He described utilitarian, social justice, libertarian and "virtual certainty required" styles of precautionary action. In California a stakeholder group convened by the California Public Utilities Commission decided to initiate precautionary planning on ELF on the basis of the evidence available through 1992.

Dr Ken Foster took a different view of the scientific information available. While there was some evidence of leukaemia in children exposed to ELF, there was no consensus although there was a suspicion. In this case a precautionary approach may be justified. However he did not see any evidence to support precautionary action for RF. He also felt there had been a failure to consider other sources of RF while concentrating on base stations. No cost-benefit analyses of base station measures appeared to have been undertaken.

Dr Foster concentrated mainly on the question of identifying the risk that would trigger the application of the PP. There must be some suspicion or evidence that the problem exists. Preventative measures can't be based on a hypothetical risk. Measures that can be warranted are research, risk communication, siting, and improved design.

In the afternoon there were 16 invited presentations which contributed greatly to the proceedings and stimulated much discussion.

Two presentations summarised the application of the PP to recently introduced EMF regulations in Switzerland and Italy. Dr Jürg Baumann of the Swiss Environment Agency and Dr Livio Guiliani of the National Institute of Occupational Health in Italy outlined the development of the regulations in their respective countries. Dr Baumann had some requests to make to WHO: that it consider recommending precautionary limits for EMF, that it declare the ICNIRP guidelines have nothing to do with precaution, that it should elaborate its criteria for science-based action, and that it should document best available technology.

Dr Guiliani reviewed recent changes in Italian exposure limits for power lines, including some introduced, some introduced as recently as 21<sup>st</sup> February (3  $\mu$ T for new and renovated powerlines).

There were three other presentations by regulators. Dr Karpowicz outlined the development and application of occupational EMF controls in Poland. Dr Licitra from the EPA in Tuscany described how magnetic fields from powerlines were being reduced by the rephasing of conductors and the redesign of pylons and support poles. Dr Kumar from the UK promoted the idea of sharing mobile phone infrastructure as a route to reducing exposures of both phone users and the general public. Dr Kumar introduced a new term to the EMF lexicon in his reference to a "Pathological Base Station". This is one so overburdened with traffic it would exceed safety guidelines.

Public interest groups were well represented among these making short presentations. Their spokespersons came from Belgium, Denmark, Austria, UK, and Spain.

Jean Delcoigne from ASBL TESLABEL Co-ordination considered the EU was coming up with pretexts to avoid taking action on EMF. He felt there was substantial scientific evidence available to support the adoption of an ALARA approach.

Peter Gleeson, from Denmark, cited the Schwarzenburg study, the Latvian radar study, the US Embassy in Moscow incident, and the recent Salford rat study as evidence that the adverse effects of RF are real and could lead to huge medical costs in 25 years time if action isn't taken now.

Eva Marcelli from Austria sought a 100-fold reduction in the ICNIRP guidelines for base stations. She also set out seven measures to be taken in new base station siting: citizen involvement, choice of sites, preservation of landscapes, 1 mw/m<sup>2</sup> standard, allow for other RF sources, monitoring, and establishing a base station database.

Alan Meyer from Mast Action UK was not against masts but against unfair and unsympathetic siting of masts without considering the precautionary approach. He advised that some relevant recommendations in the Stewart report had been ignored by the UK authorities.

Miguel Condamines, from Spain was concerned that too many people living close to base stations and indeed standing close to mobile phone users were experiencing excessive exposure to RF radiation. He cited Robert Becker, Henry Lai, Neil Cherry and Professor Hyland as researchers who support his position.

Industry presented four short papers, three from the mobile phone side and one from an industrial association.

Maria Gonzales from the Operators Associations in Spain questioned whether the PP was a decision making tool or a weapon against communication. She outlined the problems the operators were facing as a result: delays in 3G, poor quality of service and a loss of jobs. The PP was a roadblock to technical development.

Lars Kindervater of GSM Europe listed the many benefits that had ensued since the industry adopted a precautionary approach in 2001. He put eight questions to the Working Groups and made an appeal, later repeated by Jo-Anne Basile from the corresponding association in the United States, that companies be involved in discussions concerning possible actions that affect them.

Michael Milligan of the Mobile Manufactures Forum believes the phone companies are doing enough. Fifty years of research had provided a huge volume of information on RF exposure. The inherent design of networks minimises emissions

and exposures of the public. All risk assessments so far show there is little to worry about. The preconditions for applying the PP do not exist.

Phillipe Portalier of Orgalime saw a need for coherence among the EU initiatives on EMF protection. Every aspect of the mobile phone from its concept and design to its being placed on the market is subject to rules and regulations. He would see education and information provision as a better policy than more regulation.

The final two presentations were from academics.

Professor O'Carroll from University of Sunderland considered it was simply bad science to seek 100% safety or demand zero risk. There had to be a sliding scale with degrees of certainty and levels of scientific evidence. He supports a graduated assessment of causation and therefore endorses the approach of the Californian Dept. of Health.

Professor Gil Omenn of the University of Michigan presented a US perspective on the PP. The idea of taking actions in the absence of certainty is embedded in public health practice. The steps involved are hazard identification, risk characterisation and risk reduction. Of the three actions open to reduce a risk, namely information, regulation, and substitution, Prof. Omenn consider information provision as the most important.

Finally I deal briefly with Dr Kheifets' presentation of the draft WHO paper on the Application of the Precautionary Principle to EMF. Dr Kheifets by use of some excellent slides brought the document to life, outlined the background to the document, the proposals themselves, addressed the criticisms made of the PP and the document, and set out the forward plan.

WHO wants to broaden its public health policy to include agents for which it is not yet possible to quantify the risk. The definition of the PP is less important than finding a way of moving forward.

I'd like to end with a quote made by Leeka in response to an intervention by Dr Vecchia: *"There is certainly going to be a lot of uncertainty!"*.

Dr Tom McManus

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