

ITU Workshop on “Human Exposure to Electromagnetic Fields (EMFs)”

Lima, Peru, 10 December 2013

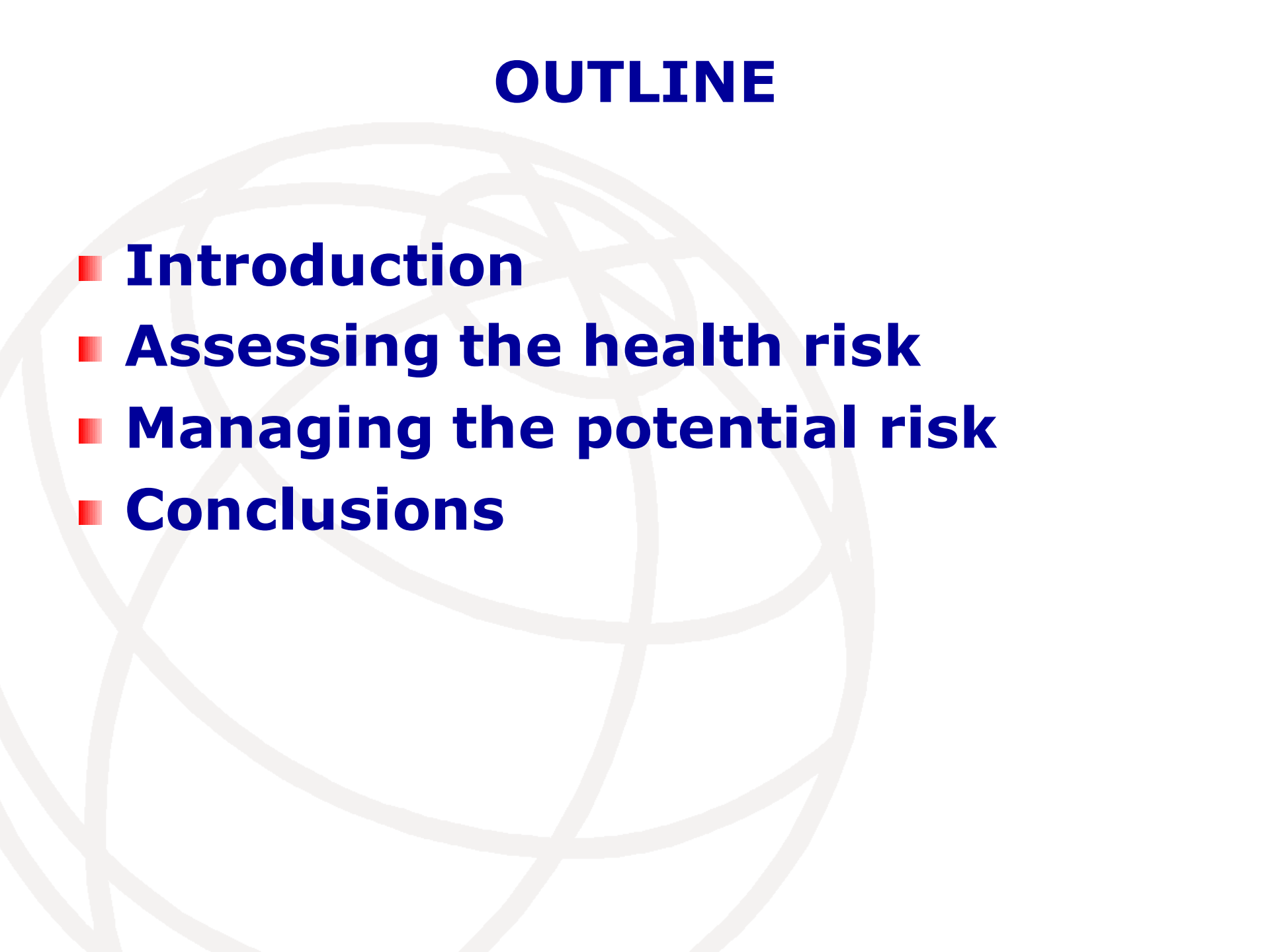
RF and Health: A WHO Perspective

Dr E. van Deventer
Team Leader
Radiation Programme
World Health Organization
email: vandeventere@who.int

Lima, Peru, 10 December 2013



OUTLINE

- **Introduction**
 - **Assessing the health risk**
 - **Managing the potential risk**
 - **Conclusions**
- 



PEOPLE

Last but not least, WHO is people. Over 8000 public health experts including doctors, epidemiologists, scientists, managers, administrators and other professionals from all over the world work for WHO in 147 country offices, six regional offices and at the headquarters in Geneva, Switzerland.



When diplomats met in San Francisco to form the United Nations in 1945, one of the things they discussed was setting up a global health organization. WHO's Constitution came into force on 7 April 1948 – a date we now celebrate every year as World Health Day.

Delegates from 53 of WHO's 55 original member states came to the first World Health Assembly in June 1948. They decided that WHO's top priorities would be malaria, women's and children's health, tuberculosis, venereal disease, nutrition and environmental sanitation – many of which we are still working on today. WHO's work has since grown to also cover health problems that were not even known in 1948, including relatively new diseases such as HIV/AIDS.

1948
International Classification of Disease
WHO took over the responsibility for the International Classification of Disease (ICD), which dates back to the 1850s and was first known as the International List of Causes of Death. The ICD is used to classify diseases and other health problems and has become the international standard used for clinical and epidemiological purposes.

1952 Dr Jonas Salk (US) develops the first successful polio vaccine.
1967 South African surgeon Christian Barnard conducts the first heart transplant.
1952–1964
Global yaws control programme
One of the first diseases to claim WHO's attention was yaws, a crippling and disfiguring disease that afflicted some 50 million people in 1950. The global yaws control programme, fully operational between 1952–1964, used long-acting penicillin to treat yaws with one single injection. By 1965, the control programme had examined 300 million people in 46 countries and reduced global disease prevalence by more than 95%.

1974 Onchocerciasis control programme
WHO worked for 30 years to eliminate onchocerciasis – or river blindness – from West Africa. 600 000 cases of blindness have been prevented and 18 million children spared from the disease. Thousands of farmers have been able to reclaim 25 million hectares of fertile river land that had been abandoned because of the risk of infection.

1974 The World Health Assembly adopts a resolution to create the Expanded Programme on Immunization to bring basic vaccines to all the world's children.
1977 The first Essential Medicines List appeared in 1977, two years after the World Health Assembly introduced the concepts of "essential drugs" and "national drug policy". 156 countries today have a national list of essential medicines.

1979 Eradication of smallpox
The eradication of smallpox – a disease which had maimed and killed millions – in the late 1970s is one of WHO's proudest achievements. The campaign to eradicate the deadly disease throughout the world was coordinated by WHO between 1967 and 1979. It was the first and so far the only time that a major infectious disease has been eradicated.
Mr Ali Maalin Da'is, from Somalia, was the last person known to be infected with smallpox. He stood with the doctor who treated him more than 25 years ago. Ali has since worked on a polio eradication campaign.

1978 The International Conference on Primary Health Care, in Alma-Ata, Kazakhstan sets the historic goal of "Health for All" – to which WHO continues to aspire.
1983 Institut Pasteur (France) identifies HIV.
1988 Global Polio Eradication Initiative established
Since its launch in 1988, the Global Polio Eradication Initiative has reduced the number of cases of polio by more than 99% – from more than 350 000 per year to 1956 in 2006. Spearheaded by national governments, WHO, Rotary International, the US Centers for Disease Control and Prevention and UNICEF, it has immunized more than two billion children thanks to the mobilization of more than 20 million volunteers and health workers. As a result, five million children are today walking, who would otherwise have been paralysed, and more than 1.5 million childhood deaths have been averted.
2003 Severe Acute Respiratory Syndrome (SARS) first recognized and then controlled.
2004 Adoption of the Global Strategy on Diet, Physical Activity and Health.
2005 World Health Assembly revises the International Health Regulations.

2003 WHO Framework Convention on Tobacco Control
21 May 2003 was a historic day for global public health. After nearly four years of intense negotiations, the World Health Assembly unanimously adopted WHO's first global public health treaty. The treaty is designed to reduce tobacco-related deaths and disease around the world.



2003 Severe Acute Respiratory Syndrome (SARS) first recognized and then controlled.
2004 Adoption of the Global Strategy on Diet, Physical Activity and Health.
2005 World Health Assembly revises the International Health Regulations.

THE GOAL IS TO ERADICATE POLIO WORLDWIDE SO THAT NO CHILD WILL EVER AGAIN BE PARALYZED BY THIS DISEASE.

The Present EMF Context

- Increasing EMF human exposure due to electricity demand, medical technologies and wireless devices
- Increasing concern from the public

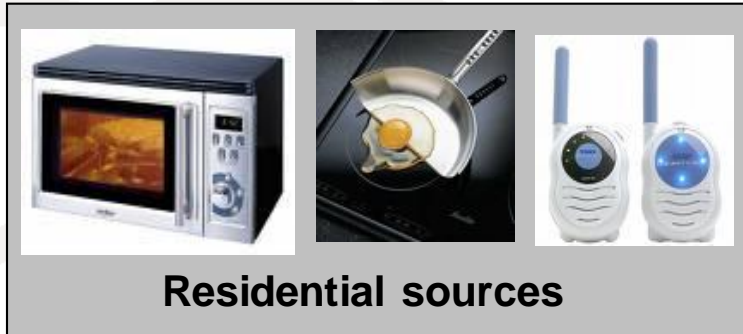
Radio Frequency Fields (100 kHz – 300 GHz)



Wi-Fi



Telecommunications



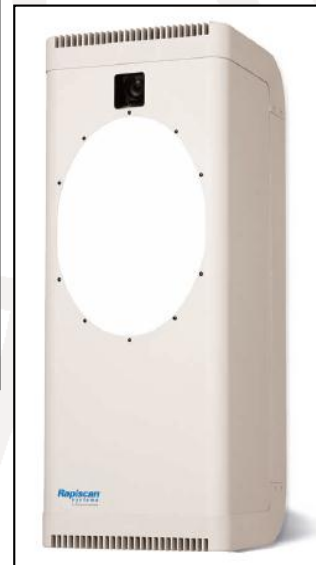
Residential sources



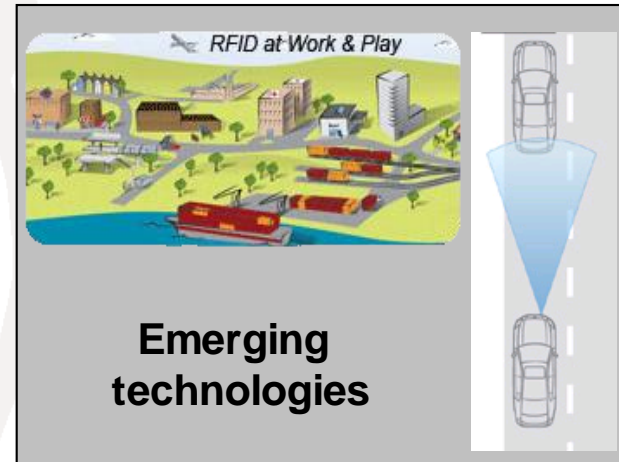
Navigation/Radar



Commercial



**Security
scanners**



**Emerging
technologies**



Broadcasting

Mobiles 'boost cancer'

Radiation may make tumours

use are still unclear.

The biggest British study, led by Sir William Stewart two years ago, could find no evidence of a risk to health. But Sir William still recommended a precautionary approach, particularly in children.

The World Health Organisation has called for more research and has urged people to limit mobile use.

Now Italian scientists believe they could be closer to the truth.

Cancer develops when control signals in a normal cell go wrong and an abnormal cell results. Instead of destroying itself the mutant cell keeps on dividing and forms a lump or tumour.

The results of the Italian study support the belief of some scientists who say radiation can damage DNA and destroy the cell repair system - making tumours more deadly.

Dr Peter de Pomerai of the



Stop Smart Meters!

Fighting for health, privacy, and safety



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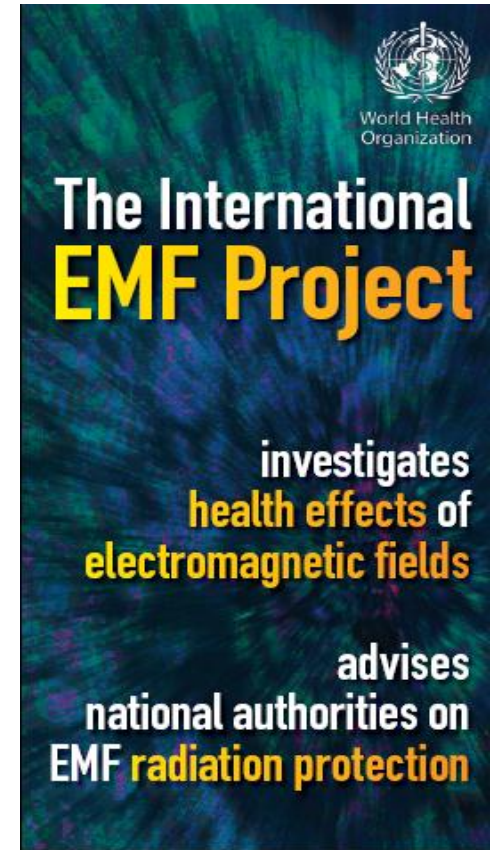
[Defend Your Analog Meter](#) [Sample Letter to Utility](#) [SSM Bulletins](#) [Press Releases](#) [Local Contacts](#) [Links](#) [Order/ Download Flyers](#)

The Present Scientific Knowledge

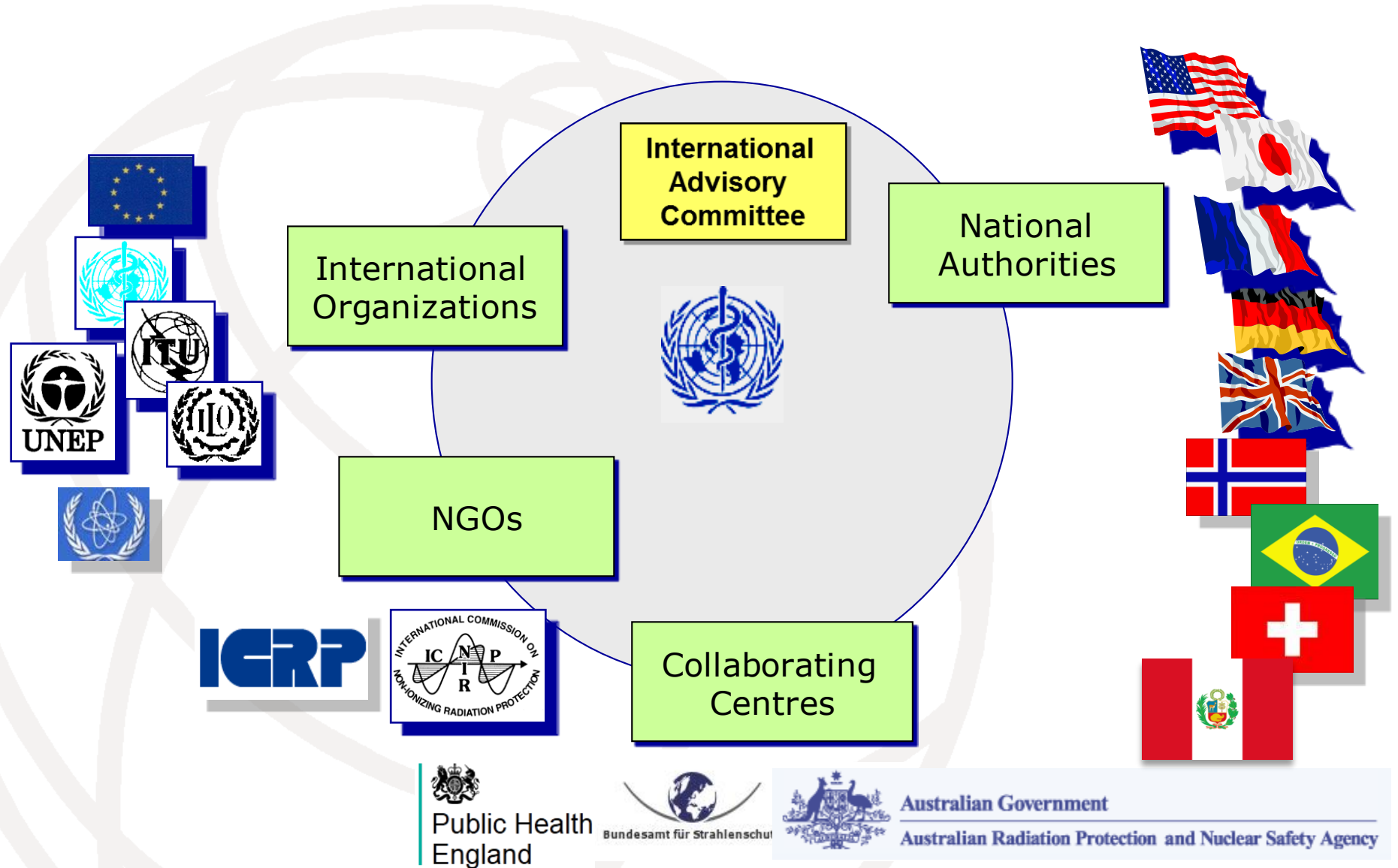
- Large and increasingly sophisticated database
- Known mechanisms
- Health effects not established below international guidelines
- Scientific uncertainty

WHO International EMF Project

- Established in 1996
- Coordinated by WHO HQ
- A multinational, multidisciplinary effort to create and disseminate information on human health risk from EMF



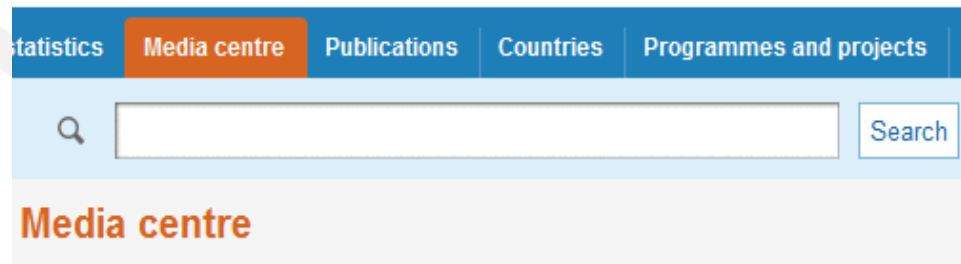
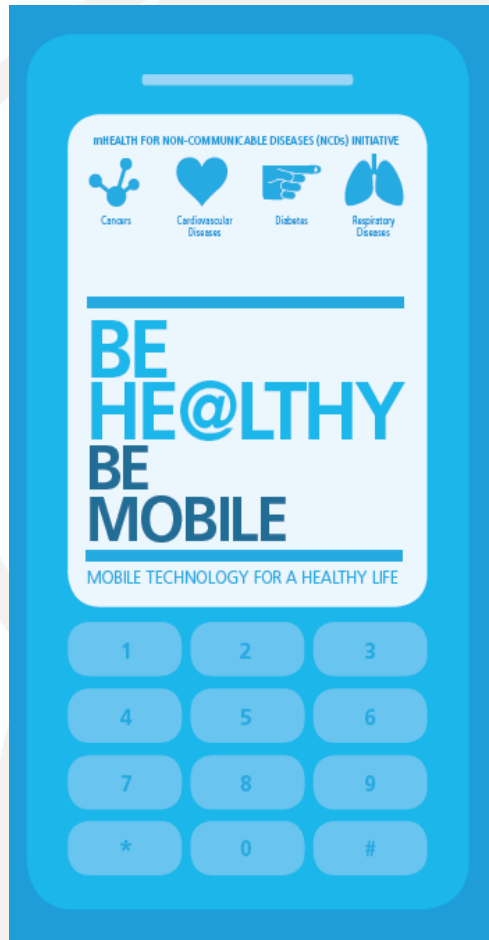
WHO Partners in Radiation



mHealth

an ITU/WHO initiative

العربي | 中文 |



ITU and WHO launch mHealth initiative to combat noncommunicable diseases

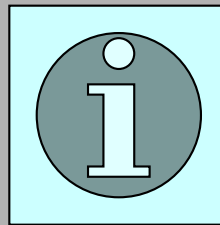
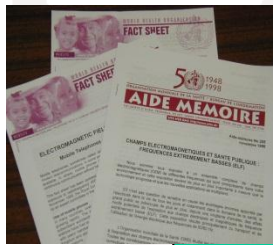
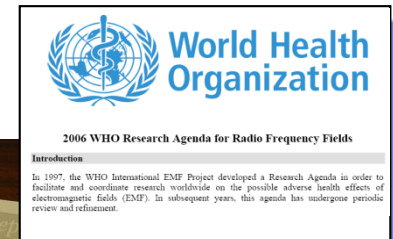
Plan to save lives and reduce costs agreed at ITU Telecom World 2012

Joint ITU/WHO news release

17 OCTOBER 2012 | DUBAI, UNITED ARAB EMIRATES - The International Telecommunication Union (ITU) and WHO today launched a new partnership called the 'mHealth' Initiative to use mobile technology, in particular text messaging and apps, to help combat noncommunicable diseases (NCDs) such as diabetes, cancer, cardiovascular diseases and chronic respiratory diseases.

Do EMFs pose a health risk?

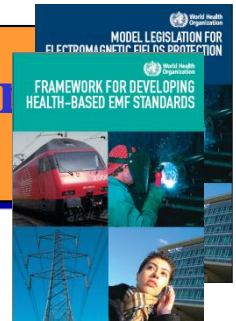
Risk Assessment
The Evidence



Risk Perception
The Public Concern



Risk Management
The Policies



OUTLINE

- **Introduction**
 - **Assessing the health risk**
- 

What do we know?

100 kHz

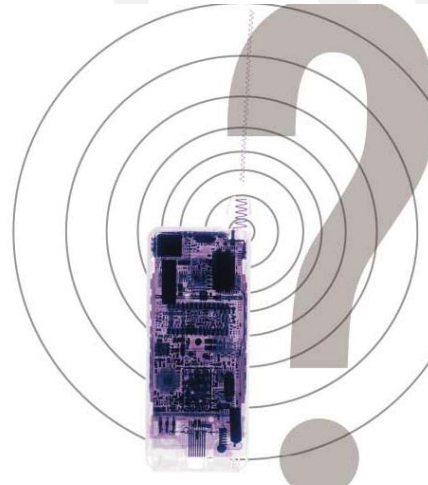
300 MHz

10 GHz

Frequency

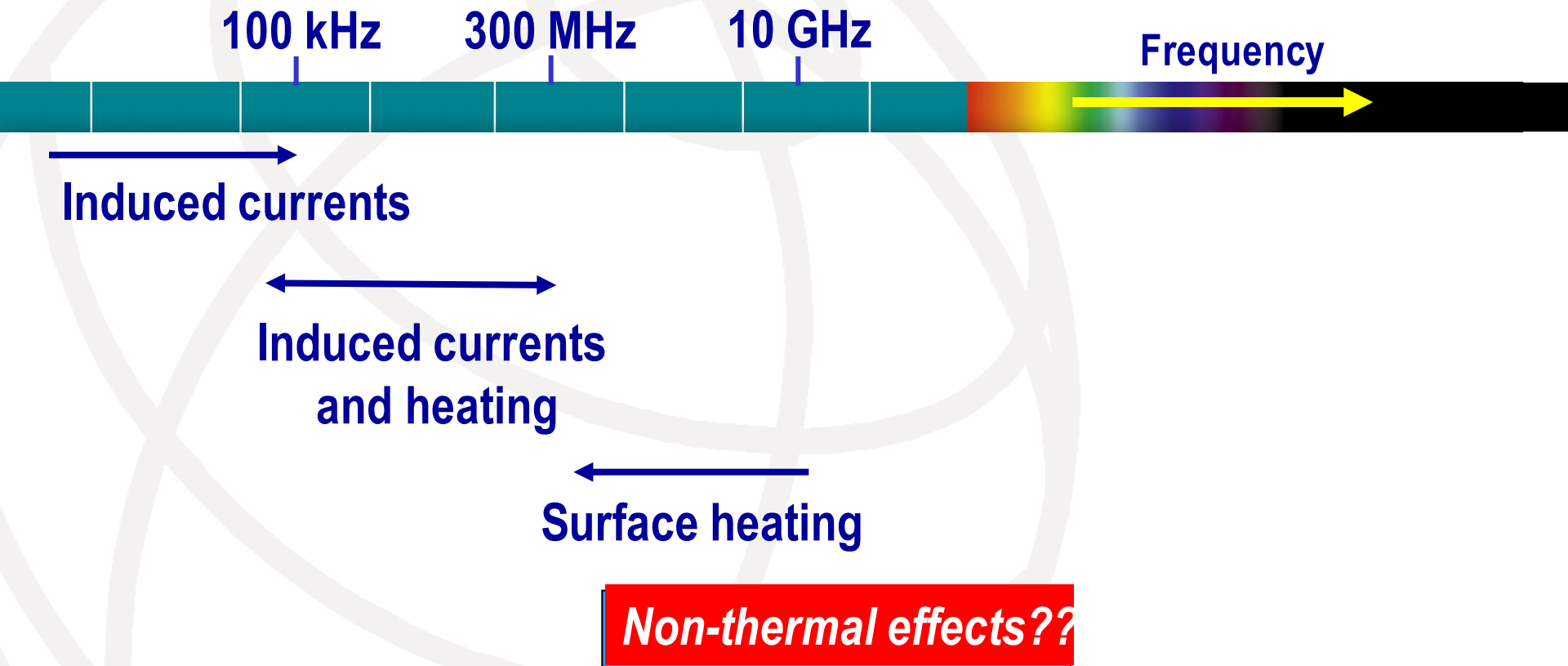


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What do we know?

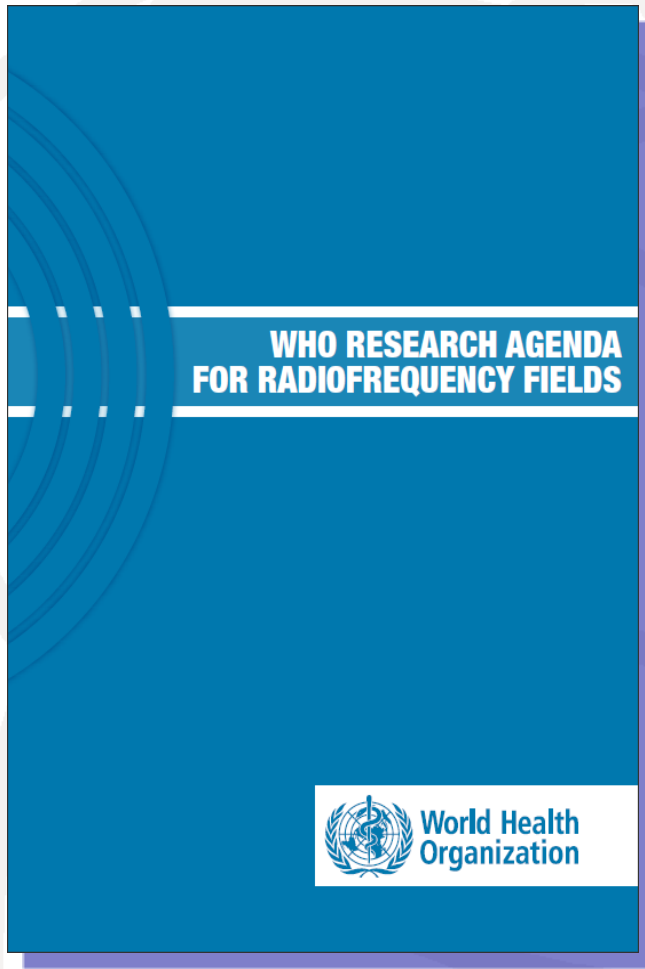
Mechanisms of interaction





**What type of research is
needed?**

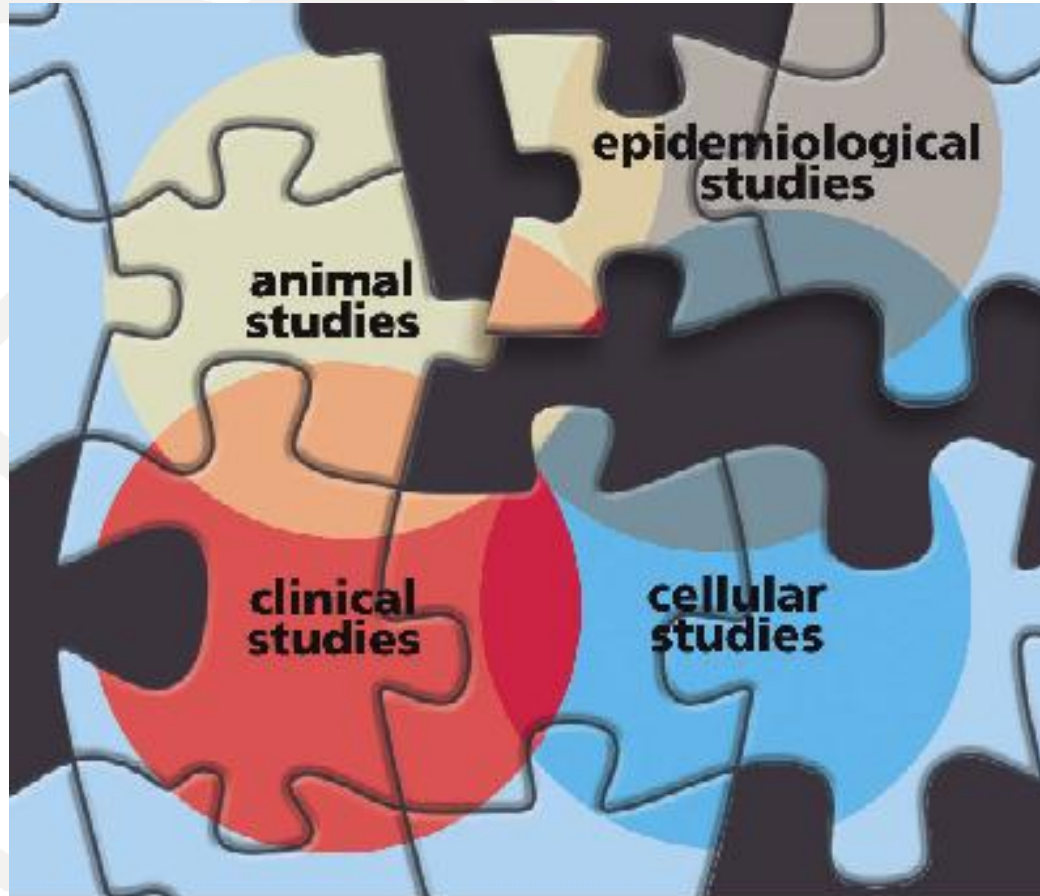
RF Research Agenda



- To promote research areas that have relevance to public health, and can
 - reduce scientific uncertainties: health effects research
 - respond to public concern through better risk communication: social science research
- Useful to researchers and funding agencies
- Uptake of the latest agenda in several countries

Research

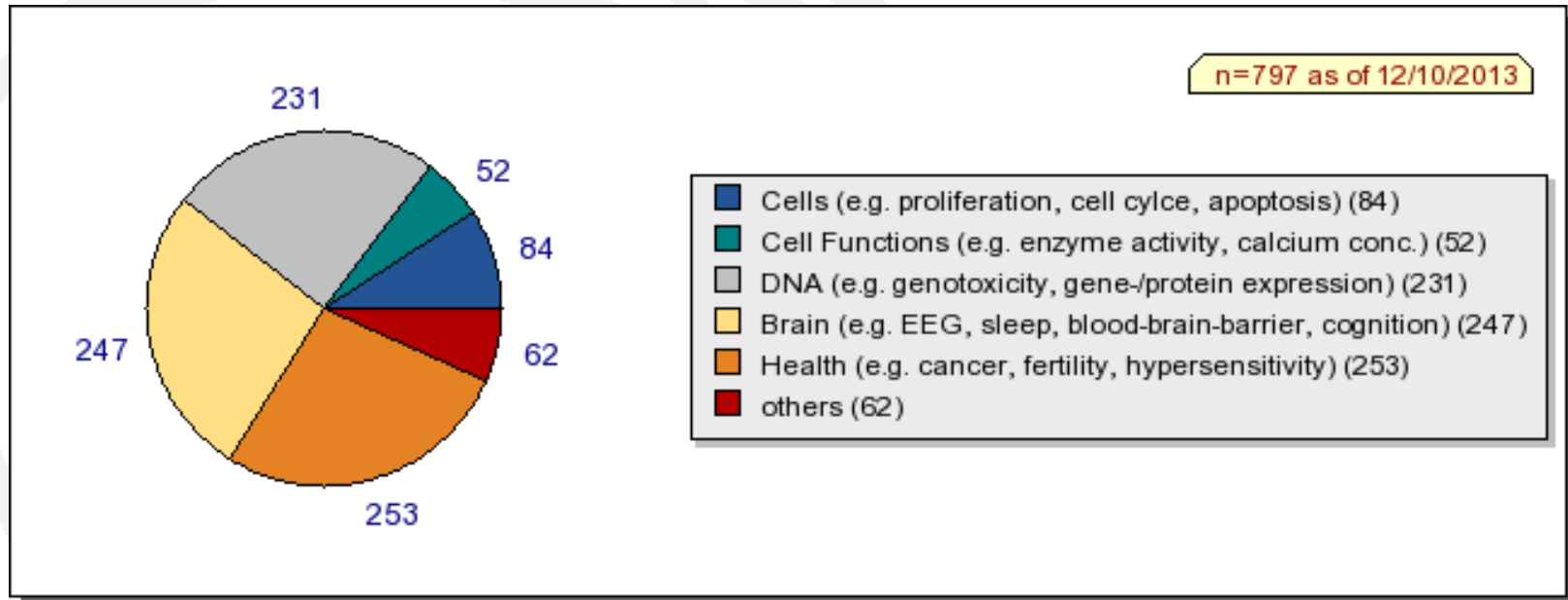
Balance of studies needed



<http://www.niehs.nih.gov/emfrapid/booklet/emf2002.pdf>

Laboratory Studies

Mobile phone related experimental studies



From <http://www.emf-portal.de/>

powered by femu

EMF-PORTAL

Site Search: in glossary

Not logged in. [\[Log in\]](#)

Information on the Effects of Electromagnetic Fields

- Home
- Objectives
- Publications Search Topics
- Graphical Overviews

- Publication Search
- Graphical Overviews
- Glossary
- Exposure Sources
- Basics

Laboratory Studies

- Cellular studies
 - Genotoxicity
 - Gene expression
- Animal studies
 - Cancer
 - Behaviour
 - BBB
 - Skin
- Human studies
 - Sleep
 - EEG
 - Hormones
 - EHS



Short-term effects

(WHO fact sheet 193, June 2011)

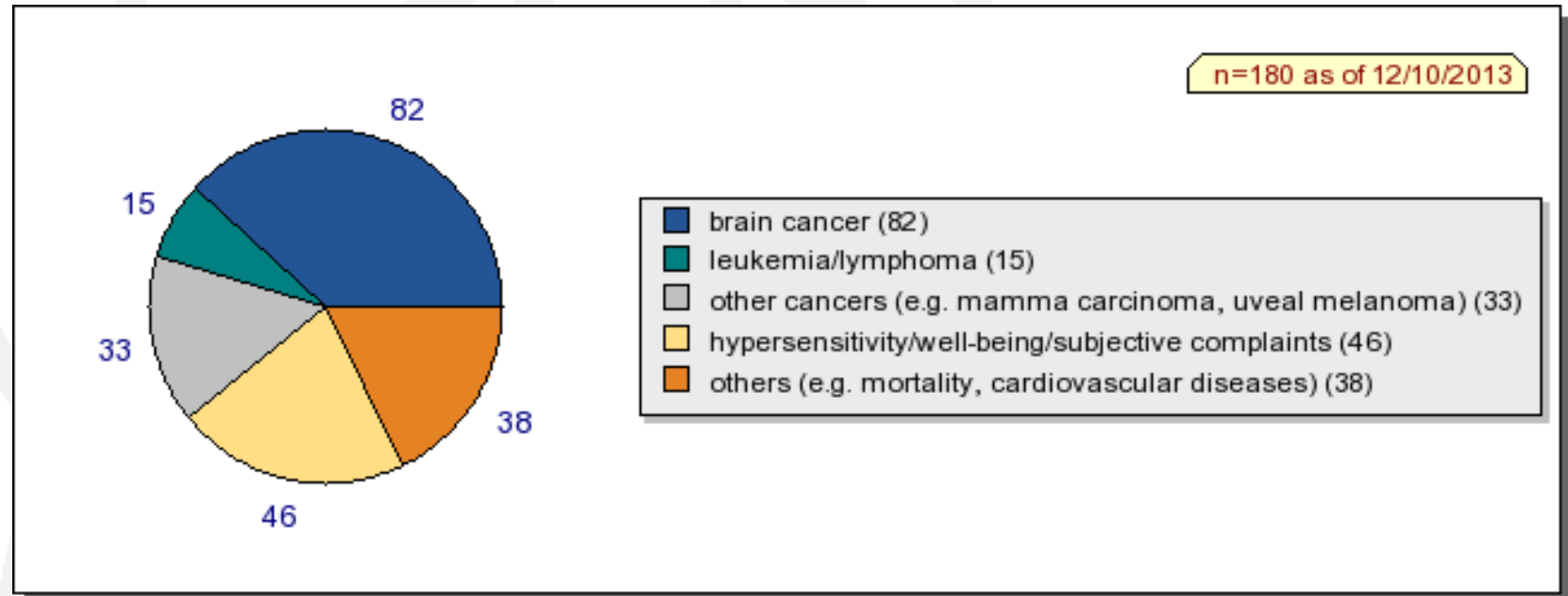
- To date, research **does not suggest any consistent evidence** of adverse health effects from exposure to RF fields at levels below those that cause tissue heating.
- Research has not been able to provide support for a causal relationship between exposure to EMF and self-reported symptoms, or “electromagnetic hypersensitivity”.

Epidemiological studies

Studies on mobile phones



Mobile phone related epidemiological studies



From <http://www.emf-portal.de/>

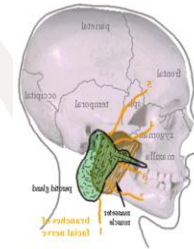
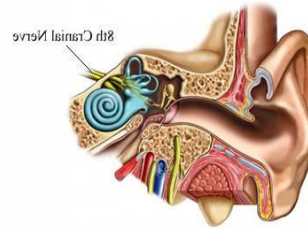
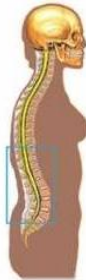
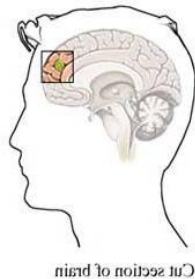
Epidemiological studies

Studies on mobile phones



■ Tumours in head and neck

- ➔ Glioma, meningioma, acoustic neuroma, parotid gland



■ Over 20 studies on the use of mobile phones

- ➔ Published: USA, Nordic countries, INTERPHONE, CEFALO
- ➔ Ongoing: MOBI-Kids, COSMOS

INTERPHONE study

(published 18 May 2010)

Published by Oxford University Press on behalf of the International Epidemiological Association
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International Journal of Epidemiology 2010;1–20
doi:10.1093/ije/dyq079

Brain tumour risk in relation to mobile telephone use: results of the INTERPHONE international case–control study

The INTERPHONE Study Group*

5 Corresponding author. Elisabeth Cardis; CREAL, Doctor Aiguader 88,
*List of members of this study group is available in the Appendix.

Accepted 8 March 2010

■ **Cases:**

- ➔ 2,765 gliomas
- ➔ 2,425 meningiomas
- ➔ 1,121 acoustic neuroma
- ➔ 109 malignant parotid gland

■ **Controls:**

- ➔ 7,658

Long-term effects

(WHO fact sheet 193, June 2011)

- No increased risk of glioma, meningioma or acoustic neuroma with mobile phone use of more than 10 years
- Indications of increased risk of glioma for heavy users
 - ➔ Biases and errors prevent a causal interpretation
- No available data for long-term use (15-20 years)
- Studies on children ongoing
 - ➔ No causal relationship seen in CEFALO study (July 2011)

Centro de prensa

Campos electromagnéticos y salud pública: teléfonos móviles

Nota descriptiva N°193
Junio de 2011



Datos y cifras

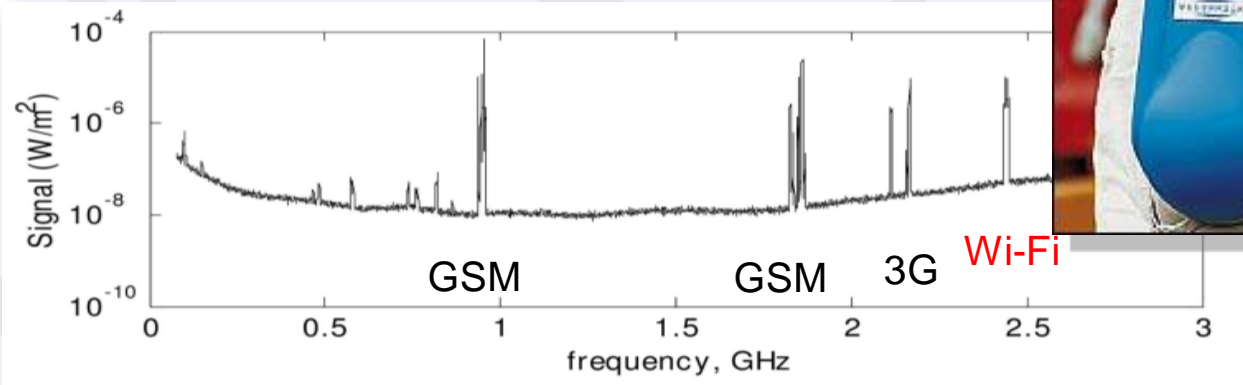
- El uso de teléfonos móviles se ha universalizado: en el mundo hay unos 4600 millones de contratos de telefonía móvil.
- El Centro Internacional de Investigaciones sobre el Cáncer ha clasificado los campos electromagnéticos producidos por los teléfonos móviles como posiblemente carcinógenos para los seres humanos.
- Hay estudios en curso para analizar más a fondo los posibles efectos a largo plazo del uso de los teléfonos móviles.
- En 2012, la OMS realizará una evaluación formal de los riesgos a partir de todos los resultados de salud estudiados en relación con campos de radiofrecuencias.

<http://www.who.int/mediacentre/factsheets/fs193/es/index.html>

Epidemiological studies

Base stations and wireless networks

- Some studies have been performed
 - Well-being and performance
 - Cancer
- Difficulty of personal exposure assessment



Kenneth R. Foster, *Radiofrequency exposure from wireless LANs utilizing WI-FI technology.*
Health Phys. 92(3):280–289; 2007



Campos electromagnéticos (CEM)

Los campos electromagnéticos y la salud pública

Estaciones de base y tecnologías inalámbricas

Nota descriptiva N°304

Mayo 2006

Conclusiones

Teniendo en cuenta los muy bajos niveles de exposición y los resultados de investigaciones reunidos hasta el momento, no hay ninguna prueba científica convincente de que las débiles señales de RF procedentes de las estaciones de base y de las redes inalámbricas tengan efectos adversos en la salud.

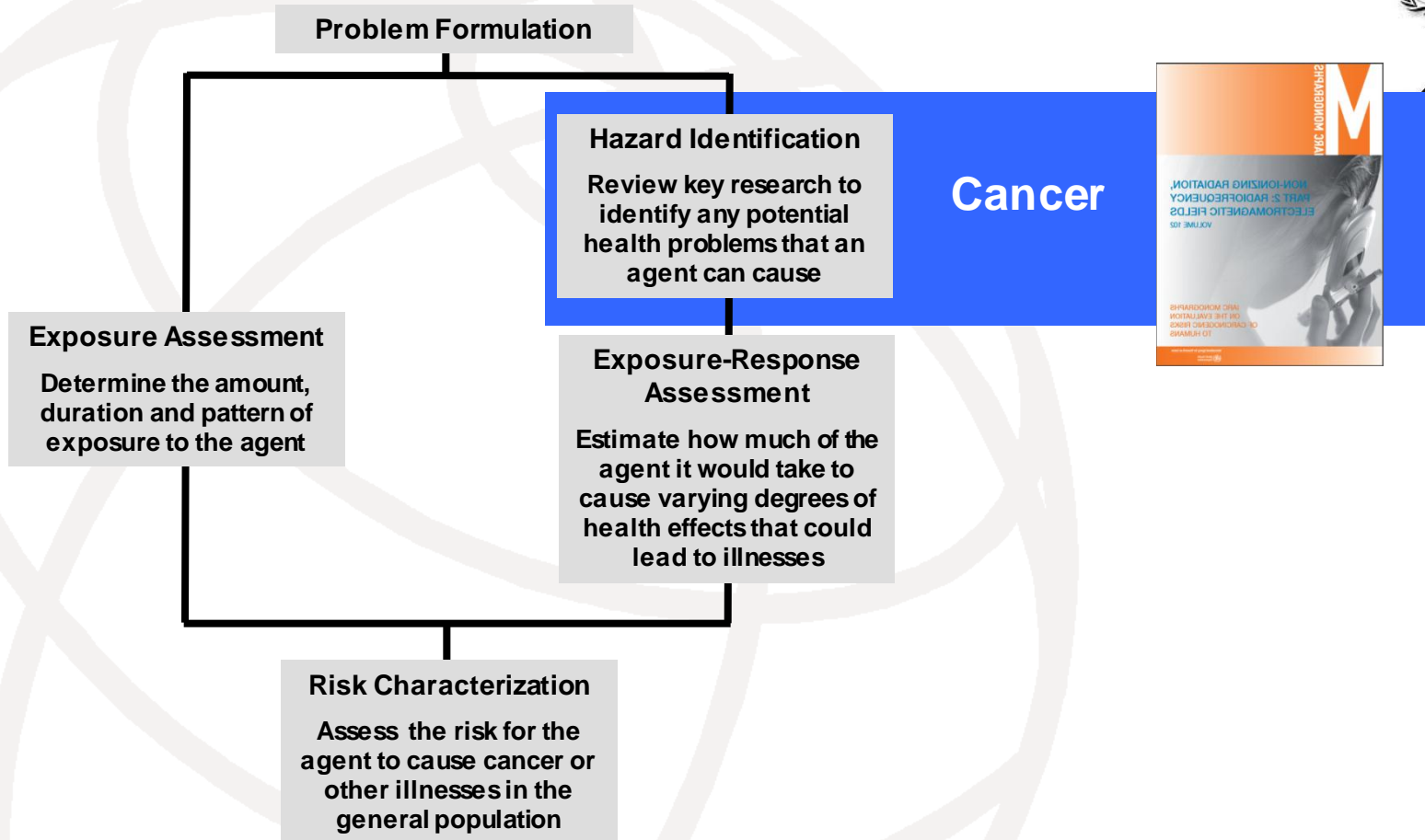
.... subject to proper siting





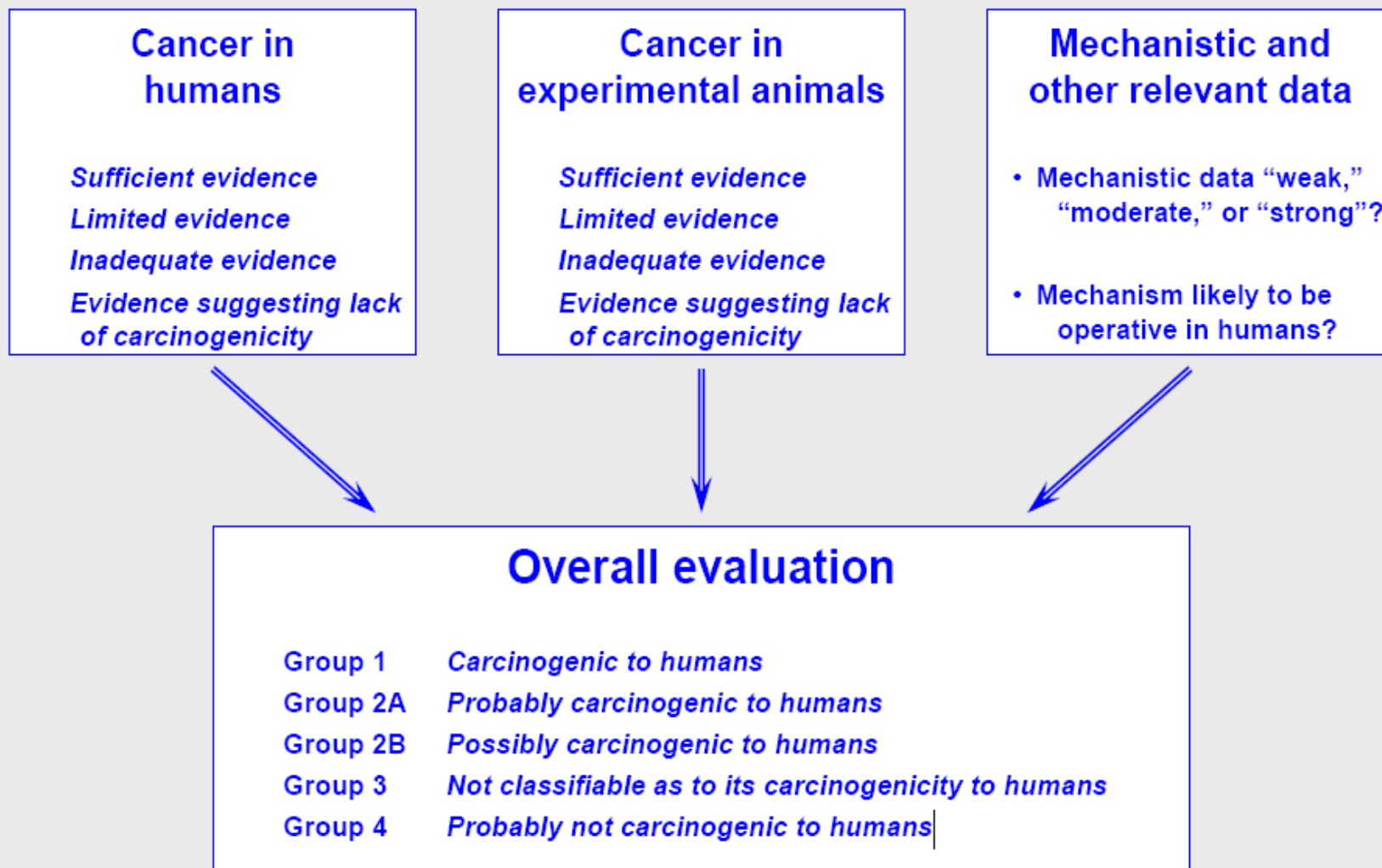
**How do we evaluate
the health risk from
EMF?**

Health Risk Assessment





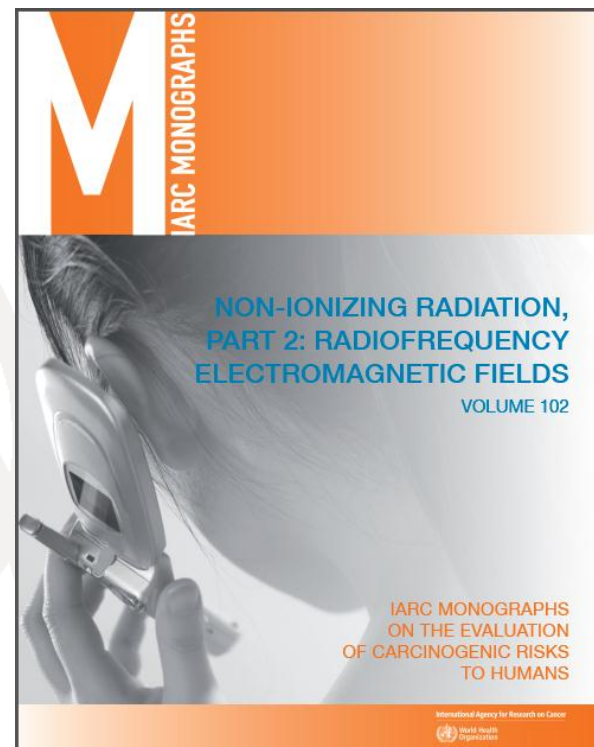
Overview of the evaluation process



IARC Evaluation (2013)

Volume 102 - Radiofrequency Fields

- RF fields classified as "*possibly carcinogenic to humans*" (Group 2B) based on
 - ➔ **limited evidence in humans**, based on positive association between glioma and acoustic neuroma and exposure to RF-EMF from wireless phones (epidemiologic studies)
 - **limited evidence in experimental animals** for the carcinogenicity of RF-EMF
 - **weak mechanistic evidence** relevant to RF-EMF-induced cancer in humans
- Evidence for **other exposures** (e.g. base stations, wifi, ...) and **outcomes** (other cancers) considered **insufficient for any conclusion**



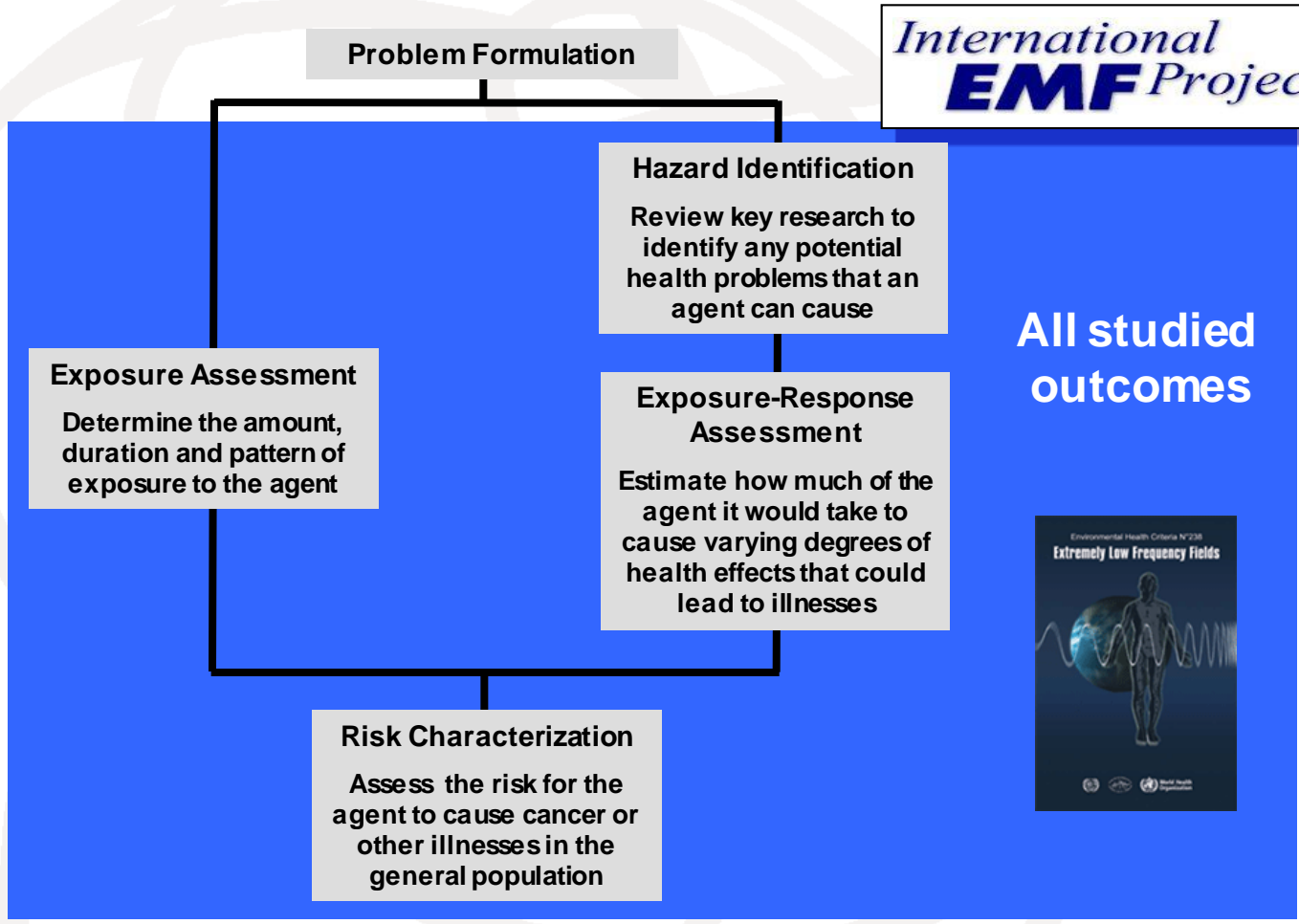
Agents Classified by IARC (950)

IARC Classification	Examples of Agents
Carcinogenic to humans (107) (usually based on strong evidence of carcinogenicity in humans)	Asbestos Alcoholic beverages Benzene Mustard gas Radon gas Solar radiation Tobacco (smoked and smokeless) X-rays and Gamma
Probably carcinogenic to humans (59) (usually based on strong evidence of carcinogenicity in animals)	Creosotes Diesel engine exhaust Formaldehyde Polychlorinated biphenyls (PCBs)
Possibly carcinogenic to humans (267) (usually based on evidence in humans which is considered credible, but for which other explanations could not be ruled out)	RF fields Coffee Gasoline engine exhaust Pickled vegetables ELF magnetic fields Styrene

Health Risk Assessment (cont'd)



International
EMF Project

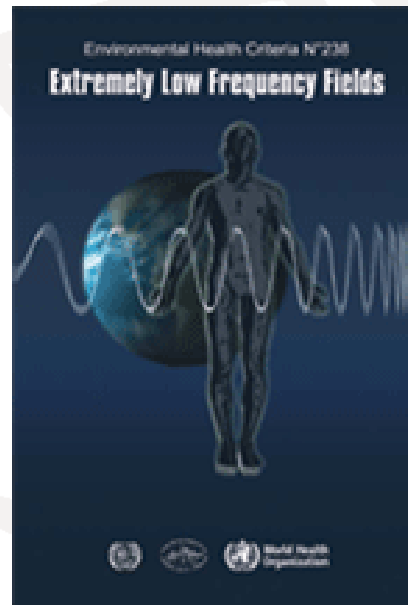


Environmental Health Criteria

Electromagnetic Fields



2006



2007



RF fields

2014

Scope

- Frequency range:
 - 100 kHz - 300 GHz
 - Include UWB, pulses, mm-waves
- Sources:
 - RFID, EAS, mobile telephony, radar, smart meters, ...
- Health benefits not included
 - Hyperthermia, MRI, medical treatments, diathermy, RF ablation surgery
- Systematic review of scientific evidence of health risks
- Update on research recommendations
- Review of national RF policies

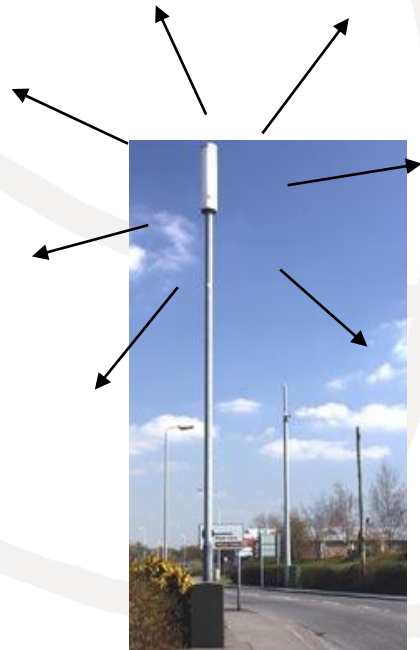
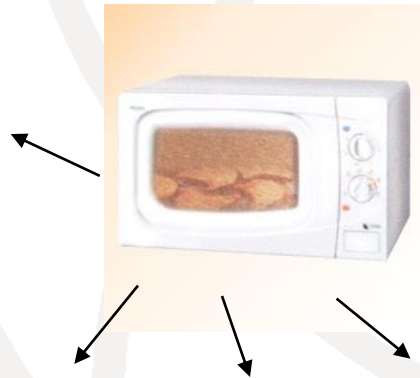
OUTLINE

- **Introduction**
- **Assessing the health risk**
- **Managing the health risk**
 - ➔ **Developing standards and regulations**
 - ➔ **Communicating the scientific knowledge**

Norms, Standards and Guidelines

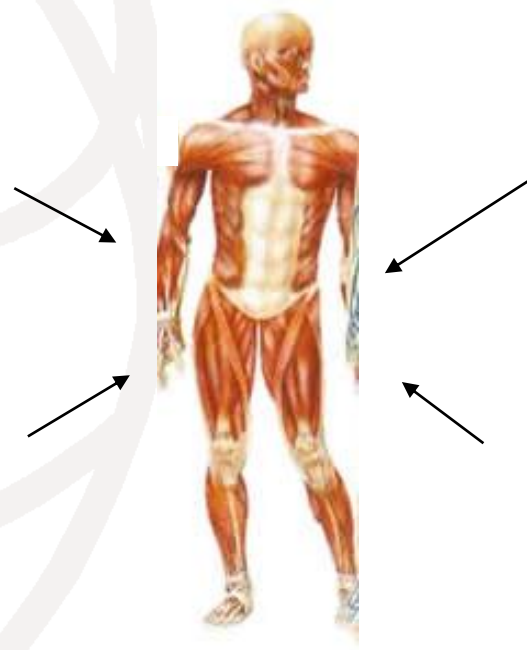
- **Emission standards**

have specifications that limit the EMF emissions from devices



- **Exposure standards**

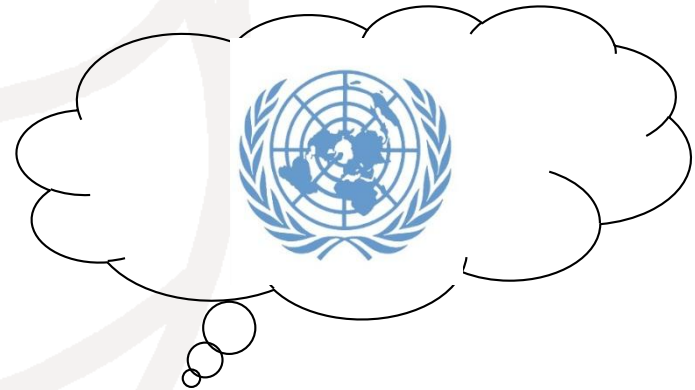
have specifications that limit EMF exposure to people



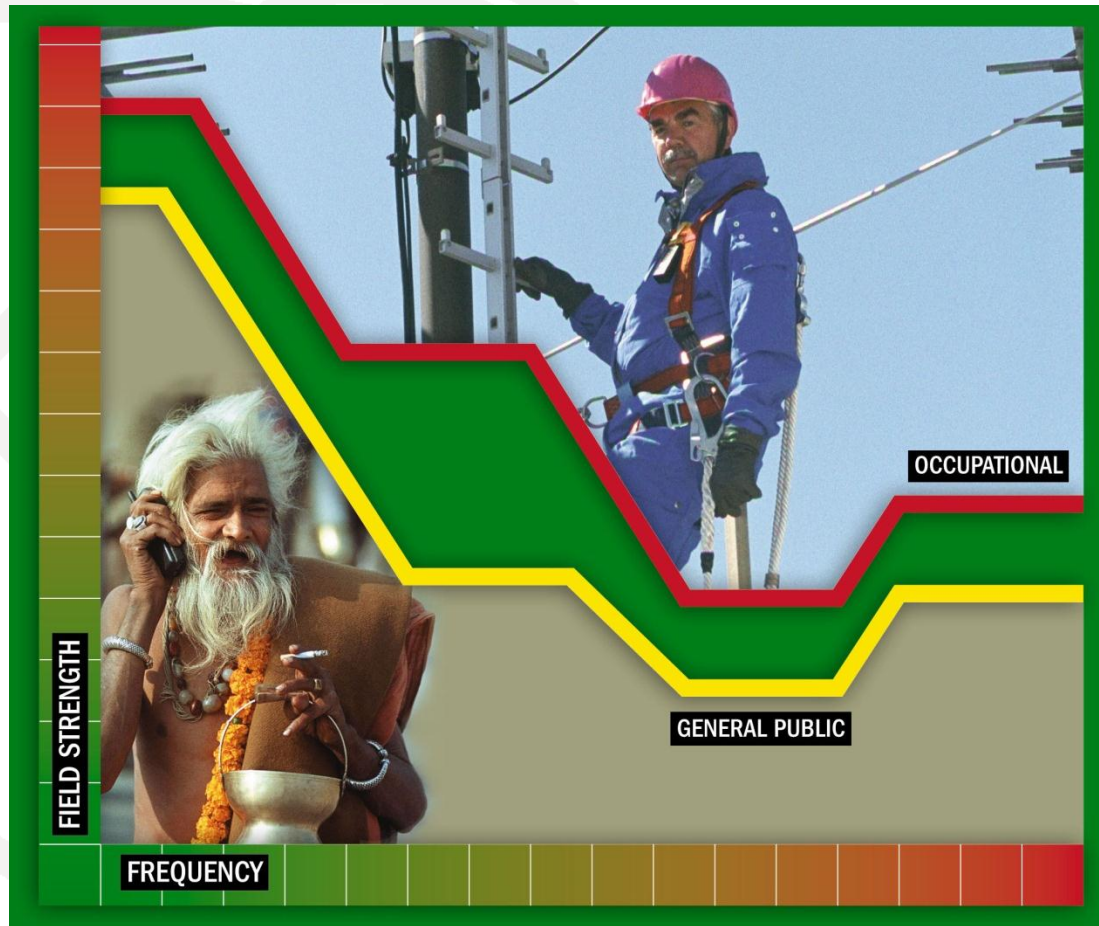
Relevant Authorities

Non-governmental and international organizations

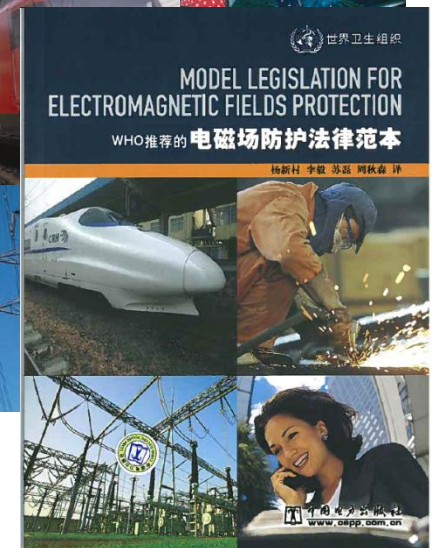
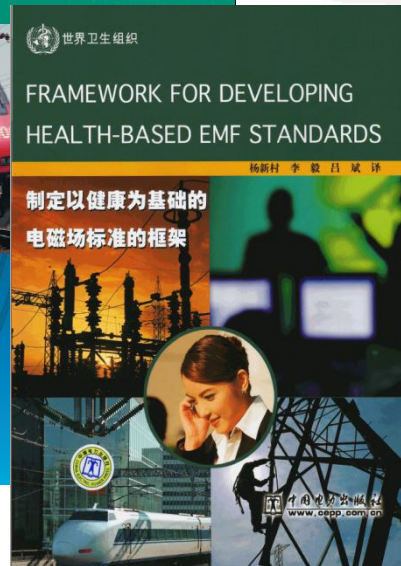
- **Emission standards**
- **Measurements standards**
- **Exposure standards**



Reference Levels



Policy documents



<http://www.who.int/peh-emf/standards/>

Extraordinary



National Assembly Journal

No. 62

Abuja - 17th April, 2012

Vol. 8

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HB. 11.12.181 A	Bill for an Act to Require Statutory Bodies to Prepare and Forward To The National Assembly Through The President Annual Reports of Its Operations and Finances; and For Other Matters Connected Therewith.....	C4897 - 4905
HB. 11.12.182 A	Bill for an Act to Provide For The Protection of Humans From Certain Levels of Exposure to Electromagnetic Fields; and for Other Matters Therewith	C4907 - 4914

Worldwide EMF standards

The screenshot displays the WHO Global Health Observatory (GHO) website. At the top, there is a navigation bar with links for Health topics, Data and statistics, Media centre, Publications, Countries, Programmes and projects, and About WHO. Below the navigation bar is a search bar with a search button and a link to Advanced search. The main heading is 'Global Health Observatory (GHO)'. On the left, there is a sidebar menu with links for Global Health Observatory, Data repository, Reports, Country statistics, Map gallery, and Standards. The main content area is titled 'Public health and environment'. It features a world map and a pie chart. The text explains that proper environmental management is key to avoiding a quarter of all preventable illnesses. It states that the environment influences health through physical, chemical, and biological risk factors. Each year, 13 million deaths are due to preventable environmental causes, with 4 million lives saved annually by preventing environmental risk, particularly in children under 15 in developing countries. A link to 'View interactive map' is provided. Below this, three key statistics are highlighted: 23% of global disease burden is attributable to the environment; 2 million deaths every year result from indoor smoke from cooking fuels; and 88% of diarrhoeal deaths are due to unsafe water, inappropriate sanitation, and lack of hygiene. Each statistic has a corresponding link to a detailed report. At the bottom, there are four featured topics with images: Household air pollution, Outdoor urban air pollution, Chemicals, and Second-hand smoke, each with a link to 'Exposure and burden of disease'. A 'Contact us' section is also present, inviting users to send comments or questions via email.

Home Health topics Data and statistics Media centre Publications Countries Programmes and projects About WHO

Search Advanced search

Global Health Observatory (GHO)

[Global Health Observatory](#)
[Data repository](#)
[Reports](#)
[Country statistics](#)
[Map gallery](#)
[Standards](#)

Public health and environment

Proper environmental management is the key to avoiding a quarter of all preventable illnesses that are directly caused by environmental factors. The environment influences our health in many ways – due to exposures to physical, chemical and biological risk factors, or through related changes in our behaviour in response to those factors. Each year, thirteen million deaths are due to preventable environmental causes. Preventing environmental risk can save as many as four million lives a year, predominantly in developing countries, among children aged less than 15 years.

[View interactive map](#)

Global disease burden	Public health and environment burden	Water and sanitation burden
23%	2 million	88%
of the global disease burden is attributable to the environment	deaths every year as a result of exposure to indoor smoke from cooking fuels	of the diarrhoeal deaths are due to unsafe water, inappropriate sanitation and lack of hygiene
Preventing disease through healthy environments	Mortality and burden of disease from household air pollution	Mortality and burden of disease from water and sanitation

Household air pollution
Exposure and burden of disease

Outdoor urban air pollution
Exposure and burden of disease

Chemicals
Exposure assessment, burden of disease and poisons centers

Second-hand smoke
Exposure and burden of disease

Contact us
Please send us your comment or question by e-mail.

Survey on EMF Standards

May 2013



World Health
Organization

Powered by WHO Extranet DataCol

Test: Electromagnetic Fields Exposure Standards

Many countries have put in place standards or limits to control exposures to electromagnetic fields (EMFs) over the frequency range from 0 Hz to 300 GHz. WHO is creating a new database of such standards and invites your assistance.

For simplicity, the term "standard" is used throughout this questionnaire and is intended to include any limit, guideline or policy that is used to control exposures to EMFs.

This questionnaire is divided into three broad frequency ranges:

- **static** – static or DC fields
- **low frequencies** – frequencies from 1 Hz to 100kHz, i.e. including power frequencies
- **radio frequencies** – frequencies from 100kHz to 300 GHz, i.e. including broadcast radio and TV, mobile telephony and wireless technologies.

Please fill in as many of these frequency ranges as you are able to, leaving aside any questions that lie outside your knowledge or responsibility - we recognise that the responsibility for different frequency ranges may rest with different organisations or sections of government (e.g. Ministry of Health, Ministry of Environment, Ministry of Telecommunications, Ministry of Labor, Radiation Protection Agency, ...). Feel free to forward this survey to whom it may concern in your country.

Within each frequency range, the questionnaire asks separately about standards applying to the public and to workers. For each of these divisions, the questionnaire asks about the existence of standards, their legal status, and the values at specific frequencies within each range to allow easy comparison of different standards.

The results of this survey will be made publicly available on WHO's website www.who.int/emf. If you have questions, please contact us at: emfproject@who.int

Thank you in advance for completing this survey by **May 27 2013**.

NOTE: The mention of actions/policies in this survey does not constitute endorsement by WHO that risks exist or that the actions are appropriate. Merely, they represent examples of actions/policies that are in effect or that have been proposed in some countries.

Fields marked with an asterisk (*) are mandatory.

Contact and Organization Details

Country *

Organization name *

Last name *

Global Health Observatory Data Repository

- Home
- Themes
- Data Repository**
- Countries
- Metadata
- Help



World Health Statistics

Environmental health

Children: environmental health

Climate change

Household air pollution

Lead

Occupational risk factors

Outdoor air pollution

Second-hand smoke

Total environment

UV radiation

Electromagnetic fields (EMF)

Exposure standards

Limits values

Legislative status

Filter Other export options

Exposure standards for electromagnetic fields (EMF)

Location	Year	Standards applying to the public: Static fields	Standards applying to the public: Low frequencies	Standards applying to the public: Radio frequencies	Standards applying to workers: Static fields	Standards applying to workers: Low frequencies	Standards applying to workers: Radio frequencies
Afghanistan	2013	No	Yes	Yes	No	No	No
Albania	2013	No data	Yes	Yes	No	No	No
Algeria	2013	No	Yes	Yes	Yes	Subnational	Subnational
Andorra	2013	No data	No data	Subnational	No	No	No
Angola		No	Yes	Subnational	No	No	No
Antigua and Barbuda		No	No	No	No data	No data	No
Argentina		Yes	Subnational	Subnational	Yes	No	No
Armenia		No	Yes	Yes	No	No	No
Australia		No	Yes	Yes	Yes	Yes	Yes
Austria		Yes	Yes	Yes	Yes	Yes	Yes
Azerbaijan		No	Yes	Yes	No	No	No

WHO Regional Views

- Eastern Mediterranean
- Western Pacific
- Europe

- Americas
- South-East Asia
- Africa
- Global

National management approaches

- Relevant authorities
 - ➔ National level

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Brasília - DF, quarta-feira, 6 de maio de 2009

SEÇÃO 1

Sumário		Atos do Poder Legislativo
	AG. REG. NA AÇÃO DIRETA DE INCONSTITUCIONALIDADE ADP1-8	
	PROCED. : DISTRITO FEDERAL	
	RELATOR : MIN. MENEZES DIREITO	
	AGTE(S) : PARTIDO DA SOCIAL DEMOCRACIA BRASILEIRA - PSDB	
	ADV(A/S) : AFONSO ASSIS RIBEIRO E OUTRO (A/S)	
	AGDO(A/S) : PRESIDENTE DA REPÚBLICA	
	ADV(A/S) : ADVOGADO-GERAL DA UNIÃO	
	AGDO(A/S) : CONGRESSO NACIONAL	
	Decisão: Preliminarmente, o Tribunal, por maioria e nos termos do voto do Relator, rejeitou a admissão do amicus curiae, vencidos a Senhora Ministra Cármen Lúcia e os Senhores Ministros Carlos Brito, Celso de Mello e o Presidente. E, no mérito, por maioria, desproveu o recurso de agravo, vencidos os Senhores Ministros Marco Aurélio, Carlos Brito e Eros Grau. Votou o Presidente, Ministro Gilmar Mendes. Ausente, justificadamente, a Senhora Ministra Ellen Gracie. Plenário, 22/04/2009.	
	FABR. DECL. NA AÇÃO DIRETA DE INCONSTITUCIONALIDADE ADP1-3	
	PROCED. : PARANÁ	
	RELATOR : MIN. GILMAR MENDES	
	AGTE(S) : GOVERNADOR DO ESTADO DO PARANÁ	
	ADV(A/S) : PGE PR - CÉSAR AUGUSTO BINDER	
	AGDO(A/S) : ASSEMBLEIA LEGISLATIVA DO ESTADO DO PARANÁ	
	Decisão: O Tribunal, por unanimidade, conheceu dos embargos. Em seguida, após o voto do relator, dando provimento aos embargos, no que foi acompanhado pelos Senhores Ministros Carlos Brito, Cesar Pezina e Ellen Gracie (Presidente), e dos votos dos Senhores Ministros Menezes Direito, Cármen Lúcia, Ricardo Lewandowski e Marco Aurélio, que os rejeitavam, o julgamento foi suspenso para colher os votos dos Senhores Ministros Joaquim Barbosa, Brandão e Celso de Mello e para que fossem conhecidos os votos dos	
	Atos do Poder Judiciário	
	SUPREMO TRIBUNAL FEDERAL	
	PLENÁRIO	
	DECISÕES	
	Ação Direta de Inconstitucionalidade e Ação Declaratória de Constitucionalidade	
		Atos do Poder Legislativo
		LEI Nº 11.934, DE 5 DE MAIO DE 2009
		Dispõe sobre limites à exposição humana a campos elétricos, magnéticos e eletromagnéticos; altera a Lei nº 4.771, de 15 de setembro de 1965; e dá outras providências.
		O PRESIDENTE DA REPÚBLICA
		Faço saber que o Congresso Nacional decretou e eu sancionei a seguinte Lei:
		Art. 1º Esta Lei estabelece limites à exposição humana a campos elétricos, magnéticos e eletromagnéticos, associados ao funcionamento de estações transmissoras de radiocomunicação, de terminais de usuário e de sistemas de energia elétrica nas faixas de frequências até 300 GHz (trezentos gigahertz), visando a garantir a proteção da saúde e do meio ambiente.
		Parágrafo único. Então sujeitos às obrigações estabelecidas por esta Lei as prestadoras de serviço que se utilizam de estações transmissoras de radiocomunicação, os licenciados de terminais de usuário comercializados no País e as concessionárias, permissionárias e autorizadas de serviços de energia elétrica.
		Art. 2º Os limites estabelecidos nesta Lei referem-se à exposição:
		I - da população em geral nos campos elétricos, magnéticos e eletromagnéticos; e
		II - de trabalhadores nos campos elétricos, magnéticos e eletromagnéticos em razão de seu trabalho.
		Art. 3º Para os fins desta Lei, são adotadas as seguintes definições:
		I - área crítica: área localizada até 50 (cinquenta) metros de hospitais, clínicas, escolas, creches e asilos;
		II - campos elétricos e magnéticos: campos de energia induzidos em do corpo humano por correntes ou diferenças de

National management approaches

- Relevant authorities
 - ➔ National level
 - ➔ Provincial level
 - ➔ Local level
 - Dispense building and planning permits
 - Direct contact with public and operators
 - May introduce further conservative measures based on politics rather than science

Local Authorities

Role	Possible responsibilities
Planning authority or regulator	<ul style="list-style-type: none"> Protect public health Authorise siting of transmitters Establish planning rules for transmitters Approve land use near transmitters Coordinate with other stakeholders
Landowner of transmitter site	<ul style="list-style-type: none"> Decide whether to lease site Act as a good neighbour Use position as landowner to encourage or promote local priorities.
Network operator	<ul style="list-style-type: none"> Operate radio telemetry network to monitor status of local infrastructure Operate mobile radio network to communicate with staff Operate WiFi network for public use Comply with regulatory requirements
Employer	<ul style="list-style-type: none"> Meeting occupational health and safety responsibilities for staff working near wireless network transmitters.
Source of information	<ul style="list-style-type: none"> Lead public communications about health issues. Respond to questions about wireless networks



Management Options

Reduce concern
Reduce uncertainty
Reduce exposure

- No action
- Communication
- Research
- Planning measures
- Engineering measures
- Exposure limits
-

Risk Perception and Communication

WHO Risk Handbook



- For programme managers who need basic information on EMF risk perception, communication and management
- Available in English
- Translated into Spanish, Italian, German, French, Russian, Bulgarian, Dutch, Polish, Portuguese, Hungarian and Japanese
- Available on the web www.who.int/emf

OUTLINE

- **Introduction**
 - **Assessing the health risk**
 - **Managing the potential risk**
 - **Conclusions**
- 

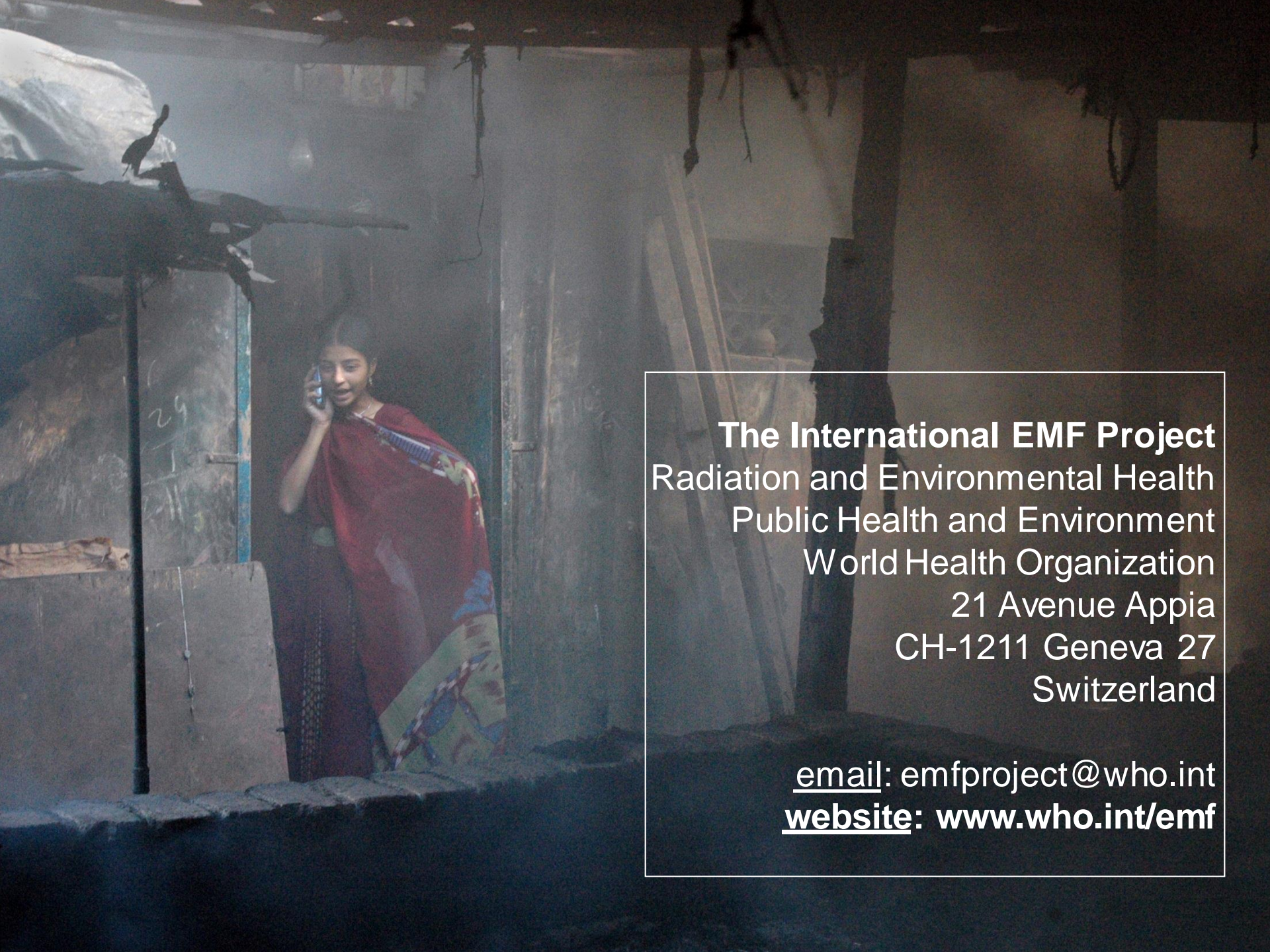
Challenges to governments....

- Rapidly evolving RF technologies
- Launched on the market before health evaluation
- Disparities in risk management measures and regulations around the world
- Concern from the public

Conclusions

- Need for clear roles and responsibilities in government on this topic
- Need for adoption and compliance of health-based standards
- Need for a public information program and dialogue with stakeholders
- Need for promoting research to reduce uncertainty

We are a "global village"



The International EMF Project
Radiation and Environmental Health
Public Health and Environment
World Health Organization
21 Avenue Appia
CH-1211 Geneva 27
Switzerland

email: emfproject@who.int
website: www.who.int/emf