World Health Organization

# The International EMF Project

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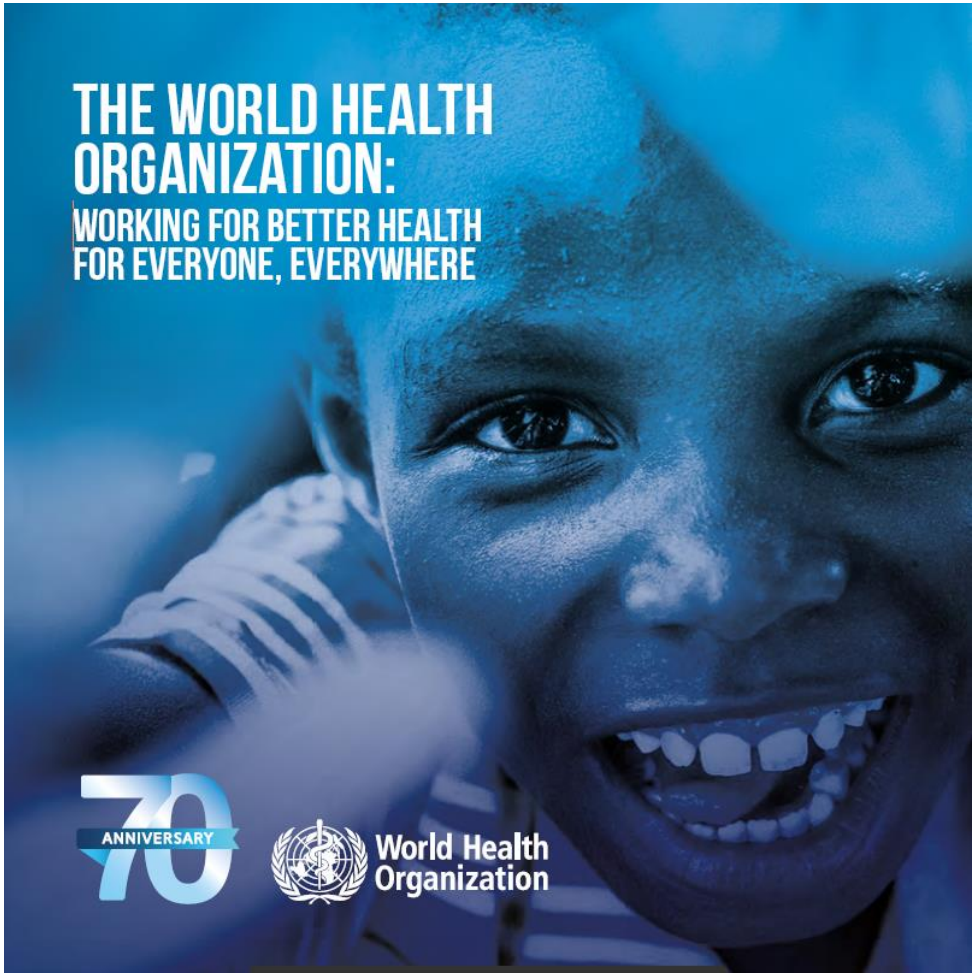
**ITU-D Meeting, 10 October 2018, Geneva, Switzerland**

# Update

- Introduction
- Activities of the WHO International EMF Project
- Outlook

# The World Health Organization

- Established on **7 April 1948**
- **Function**: act as the UN directing and coordinating authority on international health work
- **Objective**: attainment by all peoples of the highest possible level of health



# The WHO 3-level structure

World Health Organization


7000 people work for WHO in

- 150 WHO offices in countries, territories and areas,
- 6 regional offices,
- at IARC, and
- at the headquarters (Geneva)

# WHO's core functions

1. Articulate **ethical** and **evidence-based policy positions**
2. Setting **norms and standards**, and promoting and monitoring their implementation
3. Shaping the **research agenda**, and stimulating the generation, translation and dissemination of valuable knowledge
4. Providing **technical support**, catalysing change and developing sustainable institutional capacity
5. **Monitoring** the health situation and **assessing** health trends
6. Providing **leadership** on matters critical to health and engaging in **partnerships** where joint action is needed

# New leadership at WHO (July 2017)

World Health Organization

## Dr Tedros Adhanom Ghebreyesus

Over three decades, Dr Tedros has been a distinguished leader who has saved and ir
world.

Notable roles and other qualifications include:

- Minister of Foreign Affairs, Ethiopia
- Minister of Health, Ethiopia
- Chair, Global Fund to Fights AIDS, Tuberculosis and Malaria Board
- Chair, Roll Back Malaria Partnership Board
- Co-Chair, Partnership for Maternal, Newborn and Child Health Board
- Ph.D. in Community Health, Master of Science in Immunology of Infectious Dis
- Globally recognised expert and author on health issues, including health workf
  responses to epidemics, and malaria


World Health Organization

World Health Organization



Health in all policies

World Health Organization

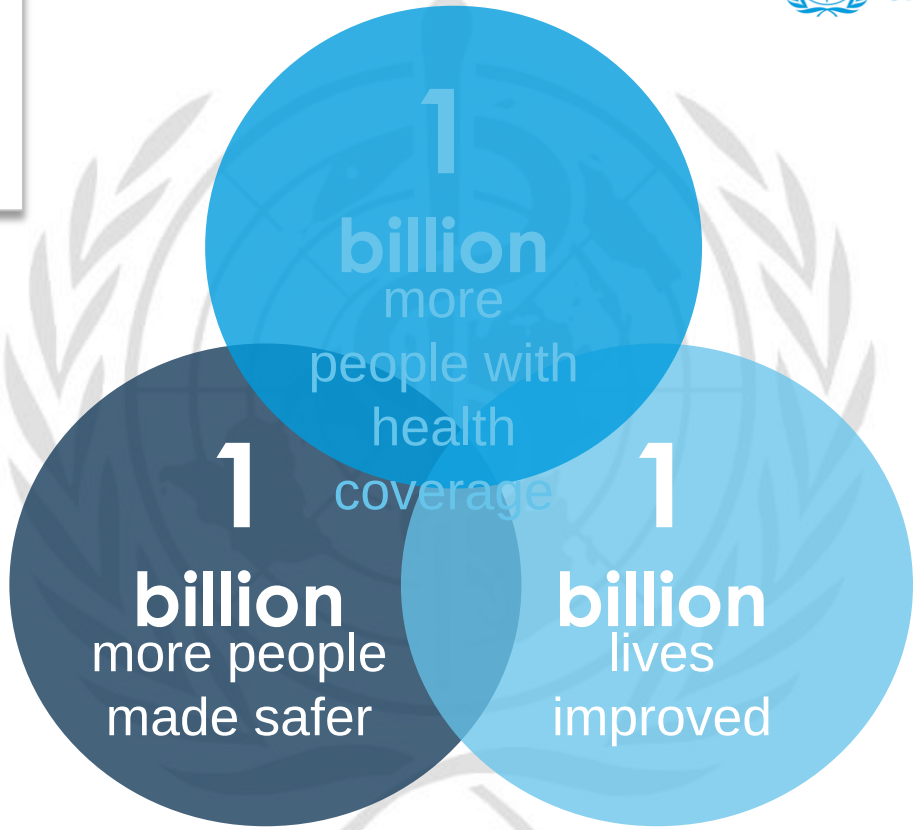
SEVENTY-FIRST WORLD HEALTH ASSEMBLY
Provisional agenda item 11.1

A71/4
5 April 2018

**Draft thirteenth general programme of work, 2019–2023**

Report by the Director-General

World Health Organization




## The case for change

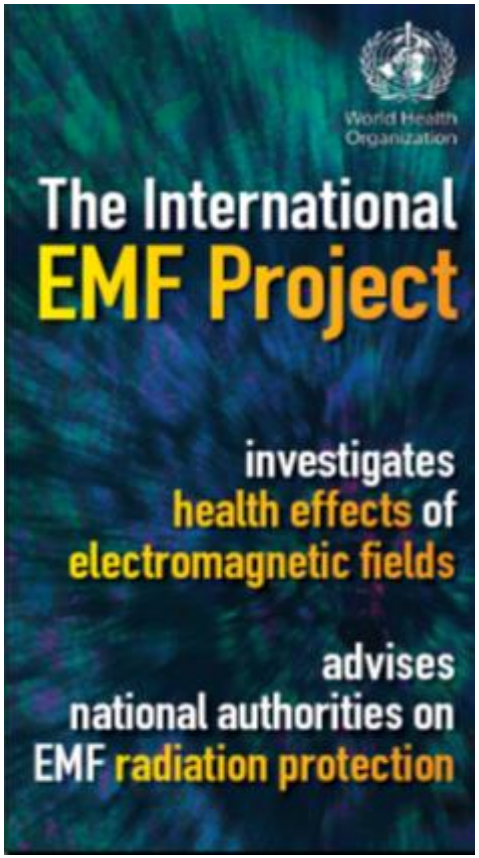
***"Our goal is clear - to make WHO a modern organization that works seamlessly to make a measurable difference in people's health at country level."***

Dr Tedros
Address to the Executive Board, January 2018

# WHO International EMF Project

World Health Organization

- Established in 1996
- Coordinated by WHO HQ
- Objectives
  - Review the scientific literature on health effects of EMF exposure and formally assess health risks;
  - Promote a focused agenda of high quality EMF research;
  - Encourage internationally acceptable harmonized standards;
  - Provide information on risk perception, risk communication, risk management



# Membership

- Open to any WHO Member State government department or representatives of national institutions concerned with radiation protection

- Over 60 national authorities have been involved in the Project
- Contacts with new countries
- New representatives have joined the International EMF Project

# International Advisory Committee
## Terms of Reference

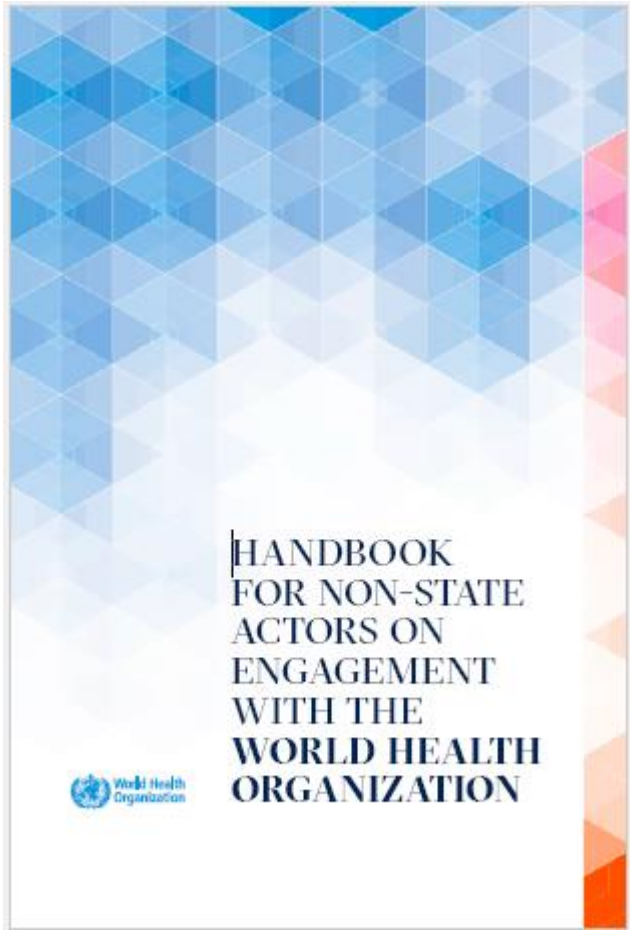
- Provide a forum for a coordinated international response on the health concerns raised by exposure to EMF fields
- Review outputs of the Project, including scientific information related to public and occupational health, and environmental management of the EMF issue
- Provide oversight on the conduct of the Project

# Activities with International Agencies

- International Agency for Research on Cancer (IARC/WHO)
- International Labour Organization (ILO)
- **International Telecommunications Union (ITU)**
- European Commission (EC)
- North Atlantic Treaty Organization (NATO)

# WHO's engagement with non-State actors

The policies governing WHO's engagement with non-State actors are an important part of WHO reform



# Activities with NGOs in official relations with WHO

World Health Organization

- International Commission on Non-Ionizing Radiation Protection (ICNIRP)
- International Commission on Occupational Health (ICOH)

- World Federation for Ultrasound in Medicine and Biology (WFU
- International Society of Radiology (ISR)
- International Organization for Medical Physics (IO
- International Radiation Protection Association (IRPA) – in process

NIR activities now included!!

# Activities with NGOs and others

- International  Electrotechnical Commission (IEC)
- IEEE International Committee On Electromagnetic Safety (ICES)
- International Union of Radio Science (URSI)

- Global Coordination of Research and Health Policy on RF Electromagnetic Fields (GLORE)

# Collaborating Centres on EMF

World Health Organization

- Australian Radiation and Nuclear Safety Agency (ARPANSA), Australia (2016-20)
- Public Health England (PHE), United Kingdom (2016-20)
- Bundesamt für Strahlenschutz (BfS), Germany (2018-22)
- Federal Office of Public Health (FOPH), Switzerland (2018-22)

- Italian National Institute of Health (ISS), Italy (2018-22)

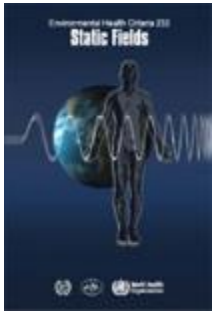
NEW!!

# Specific Activities

World Health Organization

# WHO Environmental Health Criteria Radiofrequency Fields

World Health Organization




Development of a first draft

- Set search criteria and quality criteria, include several languages
- Published peer-reviewed literature since 1993 (> 1000 refs)

Expert consultation (Fall 2014)

- Over 700 comments


WHO feedback based on evolving internal processes

- *"although the types of questions that are being examined and the statements that will be issued are not typical ones related to interventions, they will have global impact and must be based on a systematic review of the evidence and transparent, explicit processes that minimize bias. Thus the basic principles for guideline development apply".*
- Systematic reviews, risk of bias analysis, GRADE process

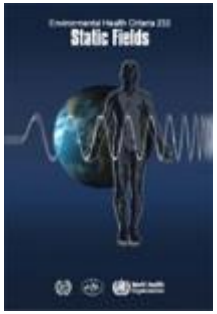
Over the past 2 years

- Enlisted help of a contracted methodologist
- Risk-of-bias analysis on a subset of cancer data (pilot with NIEHS using OHAT approach)

# WHO Environmental Health Criteria Radiofrequency Fields

World Health Organization

Appraisal of the evidence for health risks associated with exposure to RF fields to result in 2 documents.




- A **scientific literature review** to be published as a WHO technical document. The review will include conclusions for the clear-cut health outcomes, and will recommend systematic analysis for health outcomes for which the evidence does not provide consensus.
- The **RF EHC monograph** will elaborate on the health outcomes highlighted in the review process, using procedures for guideline development as recently required by WHO.


- A **Task Group** will be tasked with finalizing conclusions on all health outcomes reviewed, as well as developing research recommendations, and a health risk assessment.

# Latest steps

1. Review, revise and update the 2014 draft
2. Prioritize health outcomes
    - Developed and ran a survey (over 300 RF experts) – deadline 15 June 2018
3. Commission systematic reviews
    - Develop protocols for SRs
    - Call for expressions of interest from SR teams

Challenges

- Limited EMF expert experience in SRs
- Fundraise for SRs (>10-15k USD/ protocol)

# Research topics

World Health Organization

# National research programmes
## Examples

World Health Organization

anses
French agency for food, environmental and occupational health & safety
*Investigate, evaluate, protect*

**French Agency for Food, Environmental and Occupational Health & Safety**

**Related opinions and reports**

Mar 2018 // Opinion
ANSES Opinion regarding the expert appraisal on electromagnetic hypersensitivity (EHS) or idiopathic environmental intolerance attributed to electromagnetic fields (IEI-EMF)

Jun 2016 // Opinion
OPINION of ANSES on the expert appraisal of "Exposure to radiofrequencies and child health"

Apr 2016 // Opinion
ANSES opinion on the electromagnetic compatibility of medical devices exposed to sources of radiofrequency radiation

Oct 2013 // Opinion
OPINION of the French Agency for Food, Environmental and Occupational Health & Safety concerning the update of the "Radiofrequency electromagnetic fields and health" expert appraisal

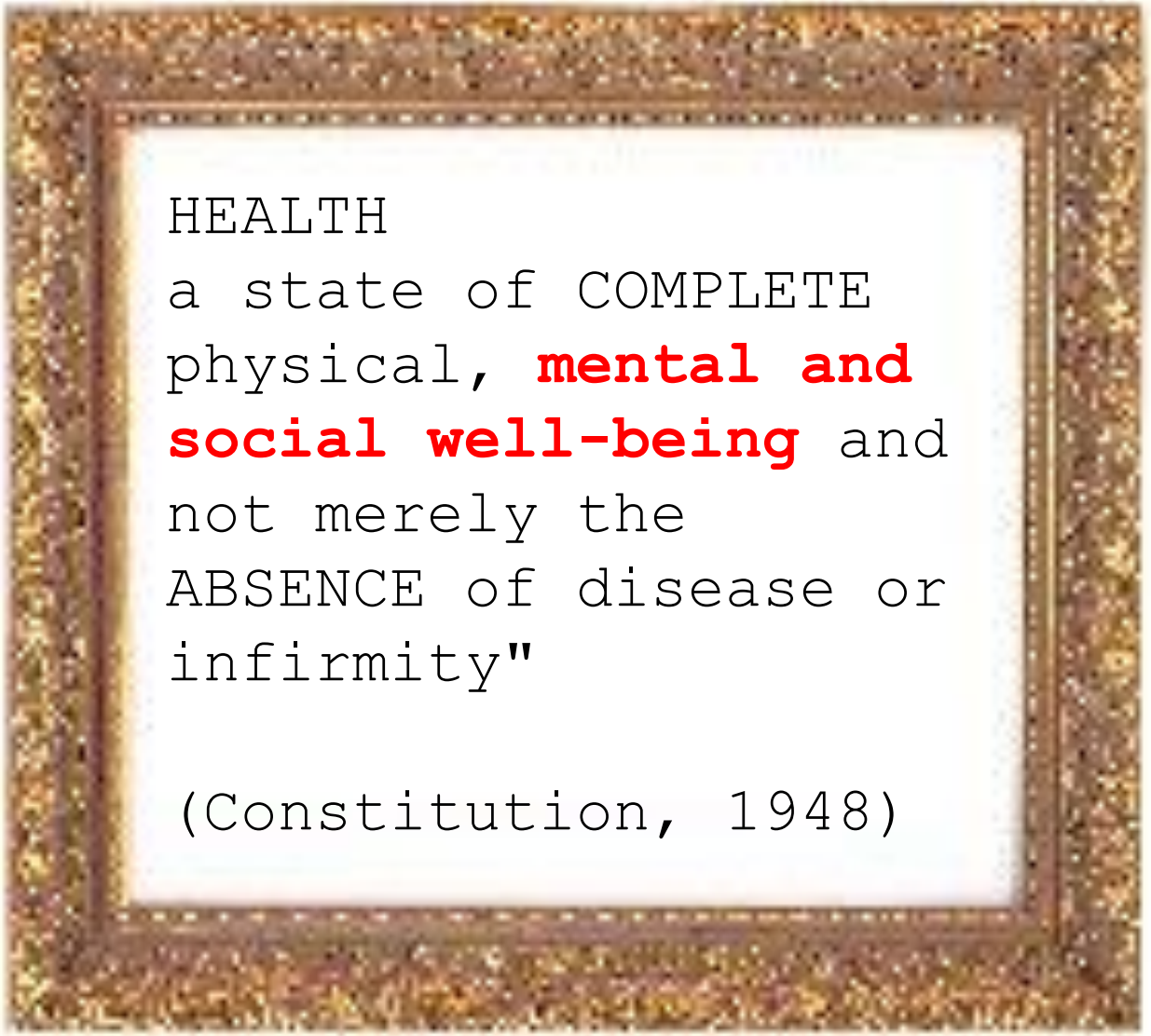
Bundesamt für Strahlenschutz

**Research programme on "Radiation Protection in the Process of Power Grid Expansion"**

World Health Organization

Health effects from wireless technologies, other than radiation

- Current research on the impact on the mental and social well-being (including addiction)



# … Social and mental well-being

World Health Organization

**Interdisciplinary Summit on Children and Screen Time**

November 1, 2017 | Washington, D.C.


**Cognitive, Psychosocial, and Physical Effects**

- learning
- attention
- sleep
- anxiety

**Effects on Family, Society, and Culture**

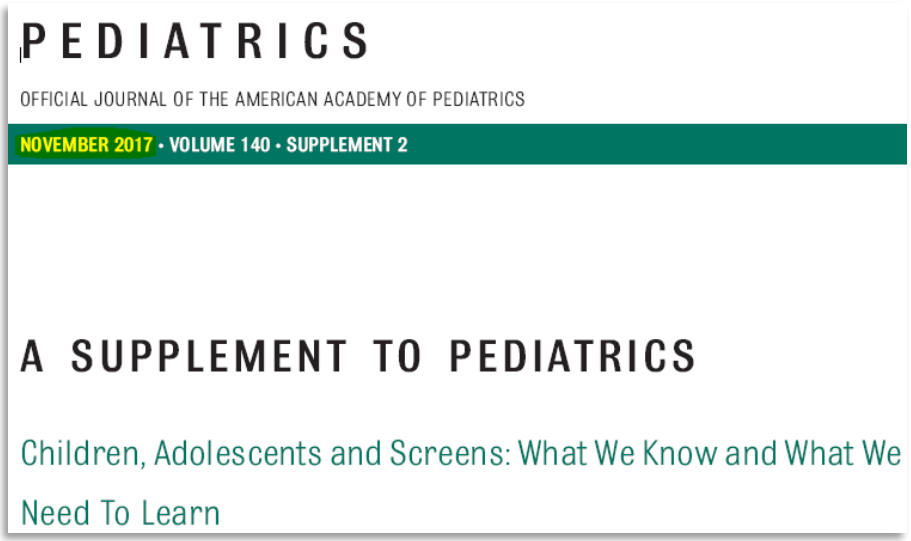
- parenting
- privacy
- digital inequality
- stereotypes

**Media, Usage, and Devices**

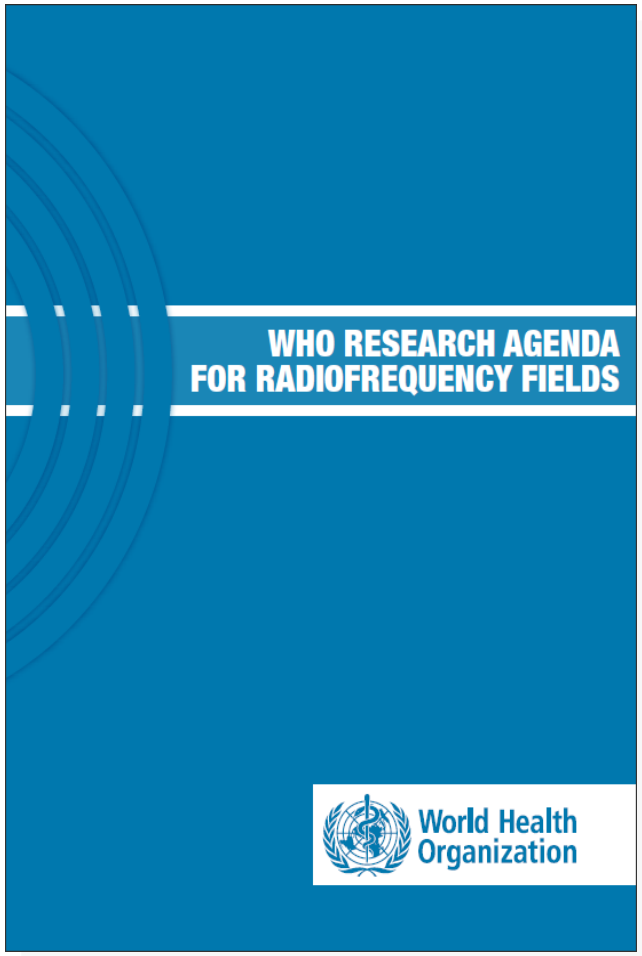
- violence
- cyberbullying
- advertising
- social media

## 3 urgent questions:

- How is digital media enhancing and/or impairing children's ability to live happy, healthy, and productive lives?
- How are years of electronically mediated interactions shaping children's physical, cognitive, emotional, and social development?
- What should we do about it?



# WHO RF Research Agenda (2010)




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

# Social science research

World Health Organization

| RF Research Agenda recommendations |
| --- |
| **Social science research** |
| Investigate the determinants and dynamics of RF EMF-related health concern and perceived health risks |
| Investigate the effectiveness of different formats for communicating scientific evidence regarding health effects of RF EMF exposure and risk information to the public |
| Investigate whether and how people's perception of RF EMF health risks can affect their well-being |
| Investigate how RF EMF technologies have been handled in a larger social context |

# Assessing public perception of risk
## Example: Annual French IRSN survey


http://barometre.irsn.fr

Annual French surveys since 1990

Measuring general concerns, the perception of risks, the credibility of the information disseminated, the role of scientific experts, …

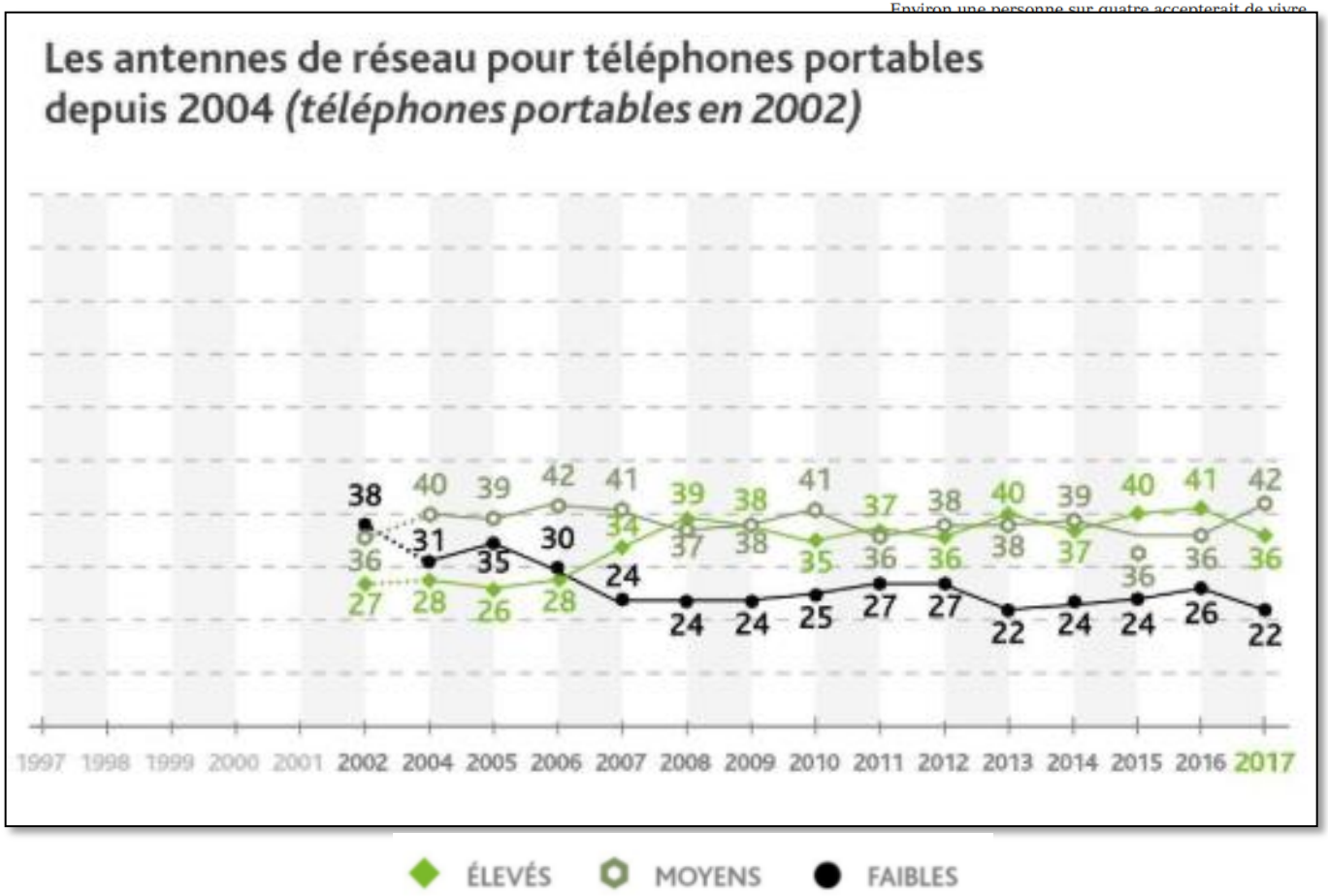
# Risk perception
## Example: France (IRSN, 2018)


Risks for the French people?

## L'ACCEPTABILITÉ DES INSTALLATIONS

**Près d'un Français sur deux accepterait de vivre près d'un parc éolien ou d'une antenne de réseau pour téléphones portables**

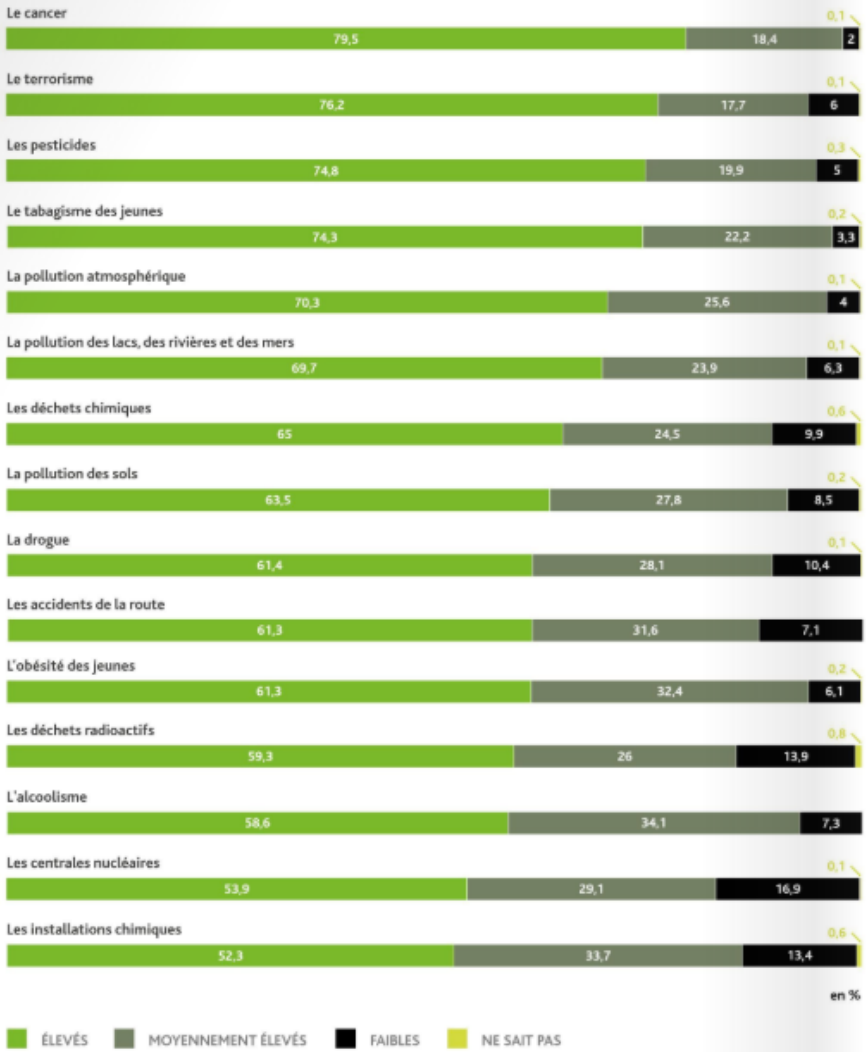
Deux installations apparaissent acceptables à près d'une personne sur deux : un parc éolien et une antenne de réseau pour téléphones portables. Il faut souligner que ces équipements sont de plus en plus présents. Environ une personne sur quatre accepterait de vivre

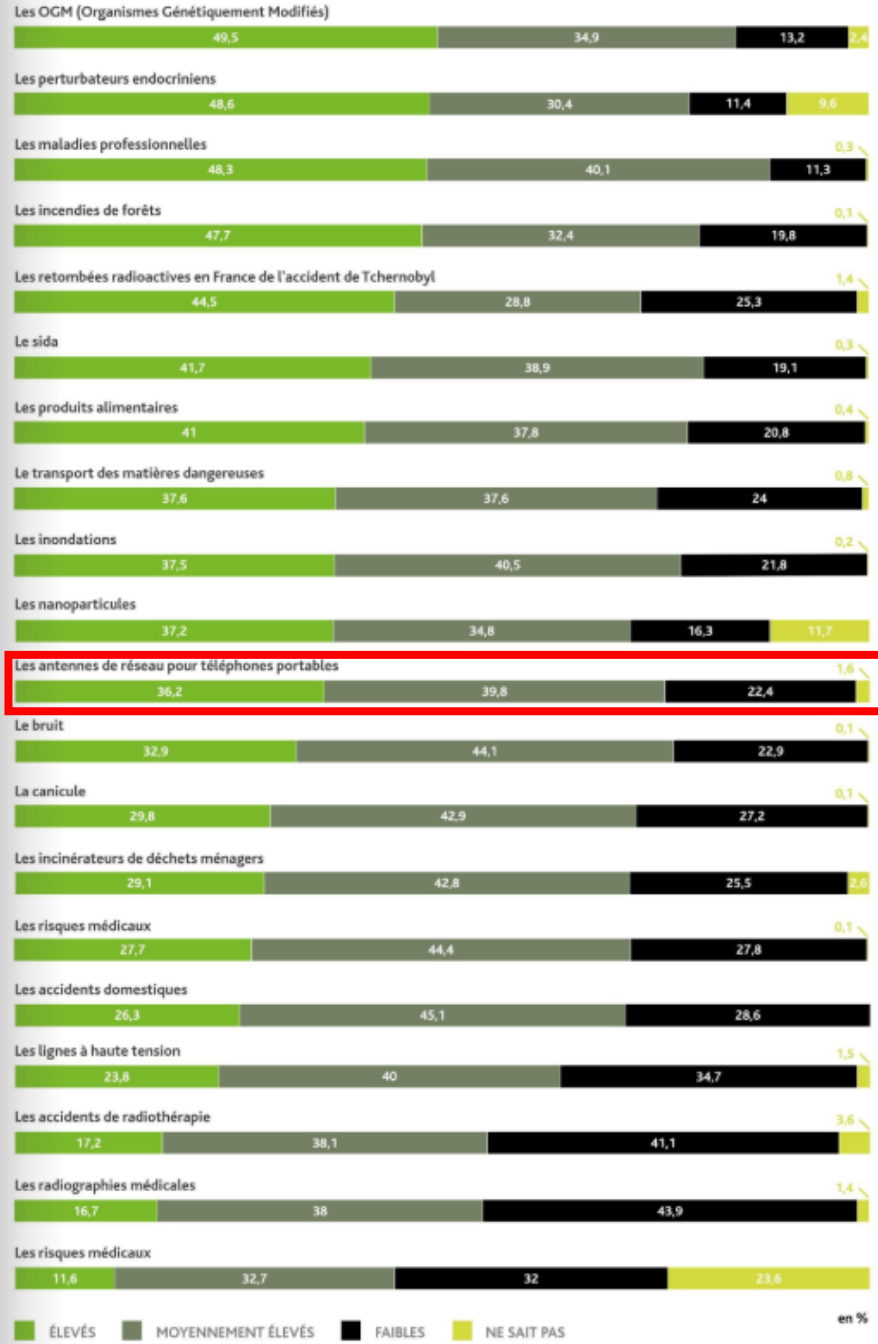


QUESTION N°1

Dans chacun des domaines suivants, considérez-vous que les risques pour les Français en général sont...

NOVEMBRE / DÉCEMBRE **2017**



# International standards for NIR Protection

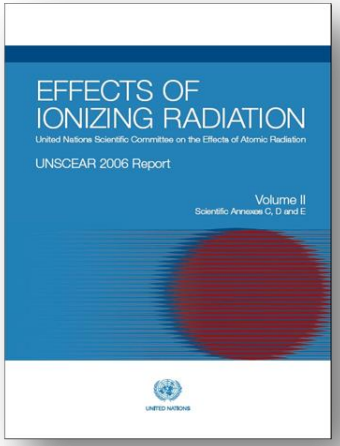
It is intended that the International Standards for Non-Ionizing Radiation Protection be developed as a **collaborative approach** to reflect an international consensus on what constitutes a high level of safety for protecting people and the environment from harmful effects of non-ionizing radiation.

Target audience of the voluntary Standards: policy makers, radiation regulators and relevant employers.

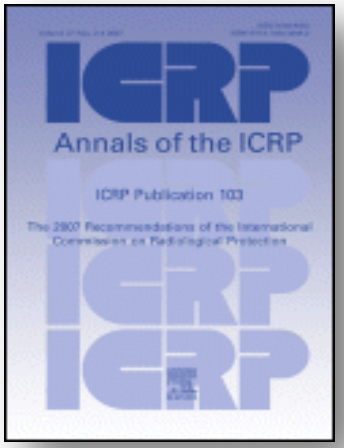
Scope: **whole NIR spectrum**, including EMF radiation, optical radiation, and acoustic fields (ultrasound and infrasound), in line with accepted definition (e.g. ICNIRP, FDA).

# The IR Landscape

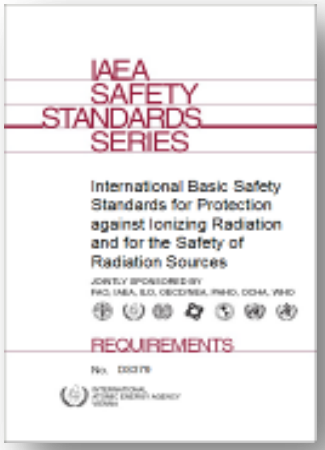
## Science, recommendations, standards




Scientific basis
Effects, risks, sources, levels, trends, …




Recommendations
System of RP (philosophy, principles, dose criteria, …)



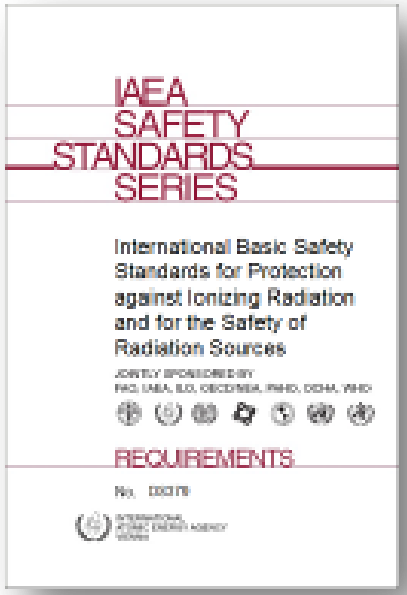

Standards
(safety requirements, regulatory language,..)

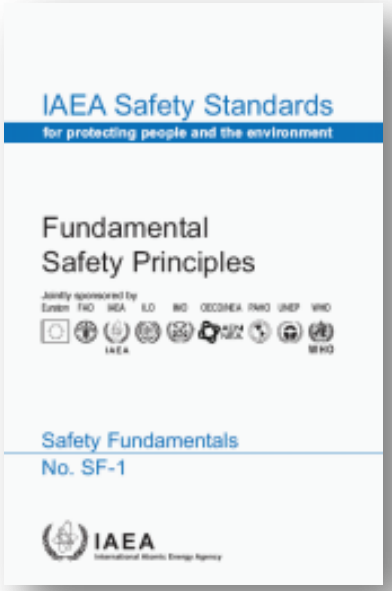
National regulations

# The ionizing radiation landscape

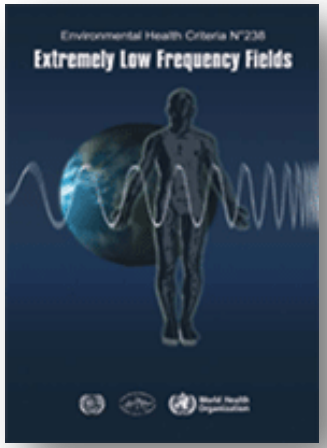
World Health Organization

Jointly sponsored by
EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO

# The NIR landscape




Scientific basis
Effects, risks, sources, levels, trends. Many international reviews

ICNIRP
INTERNATIONAL COMMISSION ON NON-IONIZING RADIATION PROTECTION
ICES
cie

Recommendations
System of RP (philosophy, principles, limits). Other bodies CIE, ICES

X

Standards
(safety requirements, regulatory language,..)

National regulations

# International standards for NIR Protection

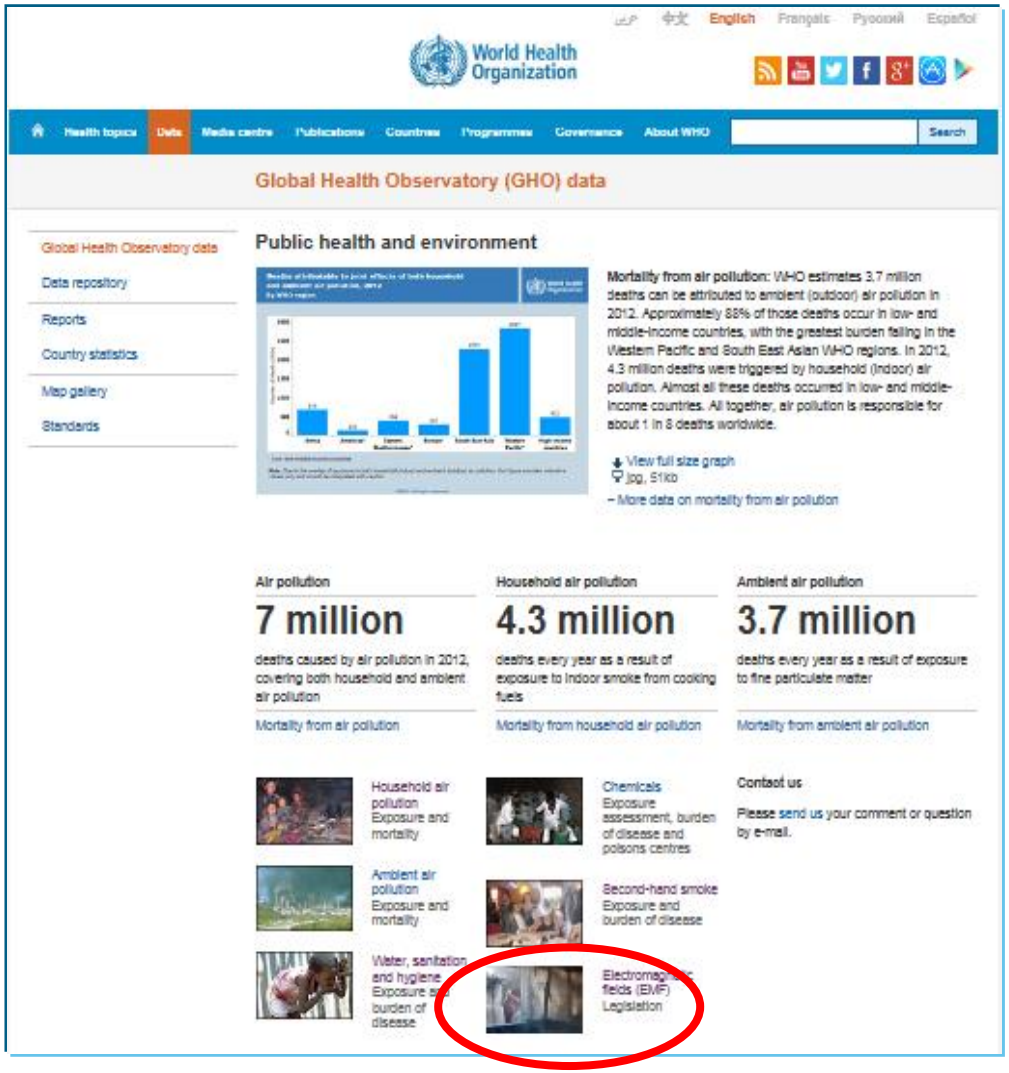
World Health Organization

Table of contents

1. Introduction
2. General recommendations
3. Public exposures (EMF, Optical, Infrasound/Ultrasound)
4. Occupational exposures (EMF, Optical, Infrasound/Ultrasound)
5. Medical exposures (EMF, Optical, Infrasound/Ultrasound)

# Worldwide EMF standards

World Health Organization



# Global Health Observatory data repository

World Health Organization

By category > Public health and environment

# Electromagnetic fields

**In this section:**

- Existence of standards
- Legislative status
- Exposure limits

## Exposure limits for radio-frequency fields (public)
## Data by country

filter table | reset table
Last updated: 2017-05-31

Download filtered data as: CSV table | XML (simple) | JSON (simple)
Download **complete** data set as: CSV table | Excel | CSV list | more...

| | | Radiofrequency | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Electric field (V/m)[i] | | Power density (W/m^2)[i] | | Specific absorption rate (SAR) (W/kg)[i] | | |
| Country | Year | 900 MHz | 1800 MHz | 900 MHz | 1800 MHz | Whole body | Head and trunk | Limbs |
| Argentina | 2017 | 41.25 | 58.36 | 4.5 | 9 | 0.08 | 2 | 4 |
| Australia | 2017 | 41.1[i] | 58.1[i] | 4.5[i] | 9[i] | 0.08 | 2 | 4 |
| Austria | 2017 | 41.25 | 58.34 | 4.5 | 9 | 0.08 | 2 | 4 |
| Bahrain | 2017 | 41 | 58 | 4.5 | 9 | 0.08 | 2 | 4 |
| Belgium | 2017 | [i] | [i] | [i] | [i] | | | |
| Brazil | 2017 | 41.25 | 58.34 | 4.5 | 9 | 0.08 | 2 | 4 |
| Bulgaria | 2017 | 6.14[i] | 6.14 | 0.1[i] | 0.1 | | | |
| Canada | 2017 | 32.1[i] | 40.07[i] | 2.74[i] | 4.4[i] | 0.08 | 1.6[i] | 4 |
| Chile | 2017 | | | 0.1/1.0[i] | 0.1/1.0[i] | 1.6/2[i] | 1.6/2[i] | 1.6/2[i] |

# Global Health Observatory data repository

World Health Organization

By category > Public health and environment

# Electromagnetic fields

## Legislative status
## Data by country

**In this section:**

- Existence of standards
- Legislative status
- Exposure limits

filter table | reset table
Last updated: 2018-06-11

Download filtered data as: CSV table | XML (simple) | JSON (simple)
Download **complete** data set as: CSV table | Excel | CSV list | more...

| | Legislative status[i] | | | | | |
|---|---|---|---|---|---|---|
| | Public | | | Workers | | |
| Country | Static | Low-frequency | Radiofrequency | Static | Low-frequency | Radiofrequency |
| Bahrain | | | | | | Mandatory[i] |
| | | | | | | Mandatory[i] |
| | | | | | | Mandatory[i] |
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| | | | | | | Mandatory[i] |
| Croatia | Mandatory[i] | Mandatory[i] | Mandatory[i] | Mandatory[i] | Mandatory[i] | Mandatory[i] |
| Cuba | | | Mandatory[i] | | | |
| Cyprus | Mandatory[i] | Mandatory[i] | Mandatory[i] | Mandatory[i] | Mandatory[i] | Mandatory[i] |

**Bahrain, Legislative status, Public, Low-frequency**

**Comment:** Name: Order No. (4) with respect to Regulating and Monitoring of Non-Ionizing Radiation emitted from Electromagnetic Fields Publication date: 2 April 2009 Link: http://www.tra.org.bh/media/document/Order%20No.%20(4)%20of%20the%20Year%202009%20With%20Respect%20to%20Regulating%20and%20Monitoring%20of%20Non-Ionizing%20Radiation%20emitted%20from%20Electromagnetic%20fields%20EN.pdf Notes:

**Value:** Mandatory

**Details:** Year: 2018, WHO region: Eastern Mediterranean

**Effective** 2018-06-11

Close

World Health Organization

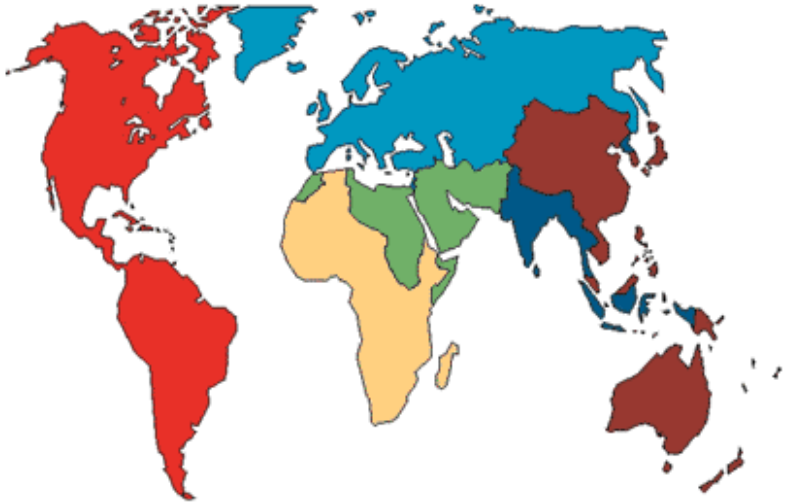


# Electromagnetic fields (EMF)



## Participating countries & entities in EMF Project

Click on your location in the map below to find information on contact details and activities relating to EMF in your area.



WHO African Region
WHO European Region
WHO Region of the Americas
WHO Eastern Mediterranean Region
WHO South-East Asia Region
WHO Western Pacific Region

Participating countries & entities in EMF Project

WHAT'S NEW!

**Model Legislation**
More information

**Standards Framework**
More information

**Fact Sheet N°304**
Base stations and wireless technologies

QUICK LINKS IN THE EMF SITE

**Fact Sheets and Information Sheets**
Full text

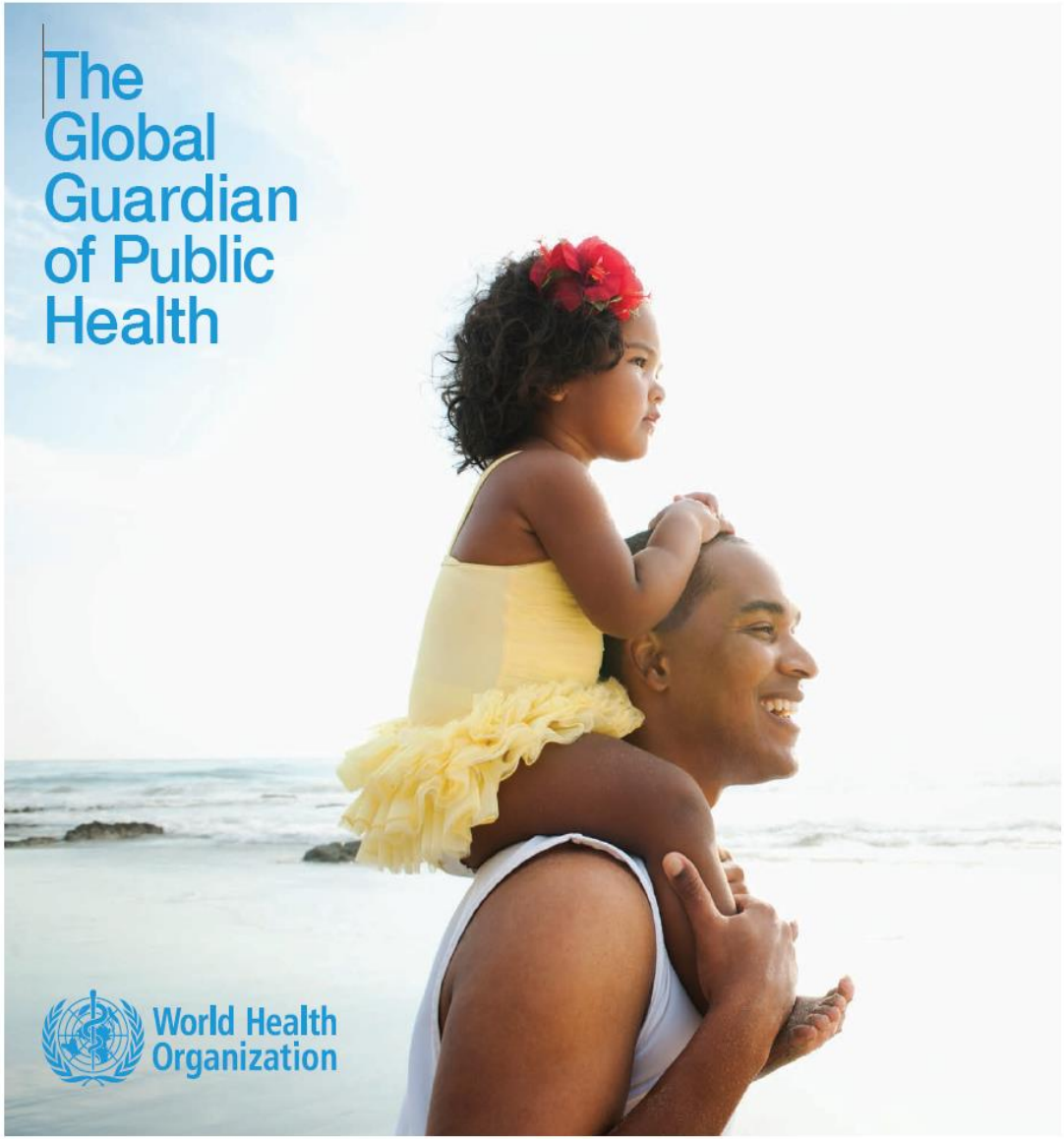
**The EMF Standards World Wide Database**
Click here

EMF ISRAEL 2018.pdf
EMF BULGARIA 2018.pdf
EMF BURKINA FASO 2018.pdf
EMF JAPAN 2018.pdf
EMF LUXEMBOURG 2018.pdf
EMF MALAYSIA 2018.pdf
EMF Netherlands 2018.pdf
EMF NZ 2018.pdf
EMF RUSSIA 2018.pdf
EMF SINGAPORE 2018.pdf
EMF SWITZERLAND 2018.pdf
EMF_KOREA 2018.pdf

# Outlook



http://www.satprnews.com/2017/09/11/global-5g-technology-and-solutions-for-iot-market-forecasts-to-2022-and-analysis/




World Health Organization

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Geneva, Switzerland