



---

# RF Environmental Health Criteria Monograph

Eric van Rongen

Health Council of the Netherlands

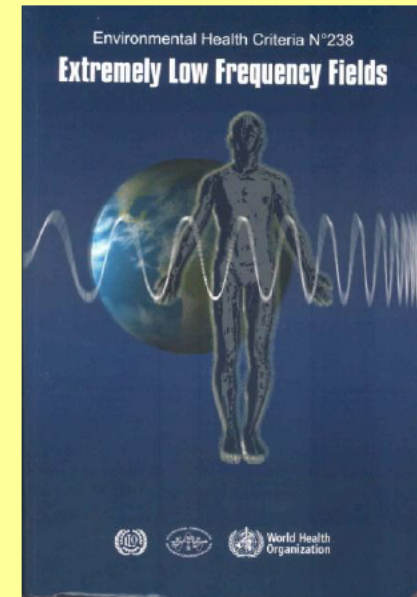
WHO International EMF Project  
International Advisory Committee meeting  
5-6 June 2012

# The history

- International EMF Project started 1996
- One of major outputs: Environmental Health Criteria Monographs
- Two published:



Static fields (2006)



ELF (2007)



# Looking back

---

- SMF and ELF EHC: different processes
- SMF:
  - Review of ALL papers (2 reviewers per paper = lot of work!)
  - ‘Classical’ organisation per topic (in vitro, in vivo, epi)
- ELF:
  - Organized per disease
  - Working groups



# Task Group meetings

---

- SMF: fairly complete draft
- ELF: incomplete draft (e.g. due to different authoring styles of chapters)
- TG should be better prepared
  - Focus during meeting more on conclusions, health risk assessment, less on details



# Early process

---

- Start with Core Group (January 2012)
  - Invited
  - Dedicated to the end of process
  - Responsible for topic of expertise
    - Physics and dosimetry
    - Interaction mechanisms
    - Cellular studies
    - Human lab studies
    - Epidemiology
    - Public health
  - Can convene own Working Group
- Core Group to develop draft



# Core group

---

- Maria Feychting (epidemiology)
- Simon Mann (physics, dosimetry)
- Gunnhild Oftedal (humans studies)
- Eric van Rongen (animal studies)
- Maria Rosaria Scarfi (in vitro studies)
- Denis Zmirou-Navier (policy)
  
- Richard Saunders (advisor)
- Emilie van Deventer (WHO)

# Kick-off meeting 31-01-2012

- What?
- How?
- Who?



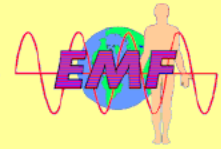


# What?

---

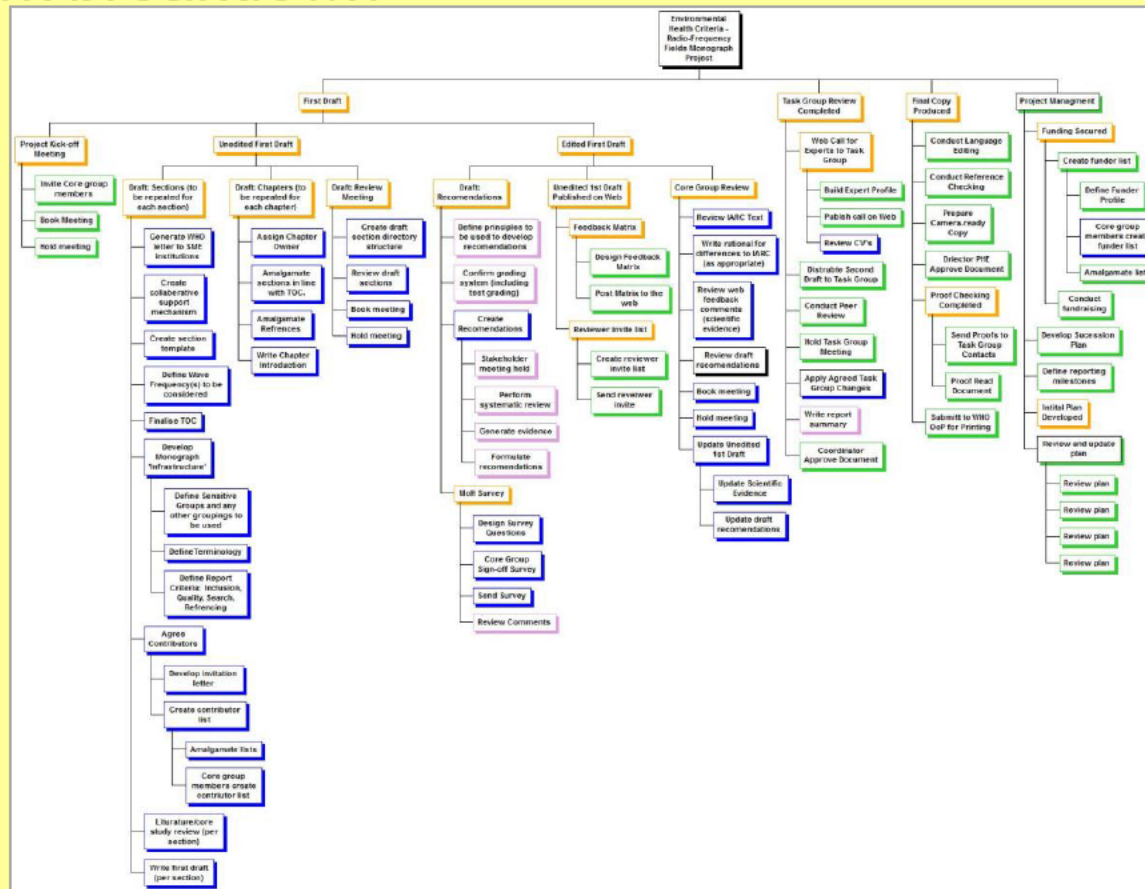
- The World Health Organization (WHO) will deliver a critical, scientific review on the effects of radiofrequency fields on all studied outcomes of relevance to human health, but excluding usage for medical diagnostic and therapeutic purposes, to support policy and decision making at national and international level. It will be conducted to the standard format and quality criteria of the EHC document series. This review is required to supplement the existing EHC series of documents covering EMF in the light of new studies and information. It will be coordinated by the Radiation Programme within the Department of Public Health and Environment of the WHO in Geneva, will be developed by independent experts in the field, and will be ready for international publication during Q2 2014.

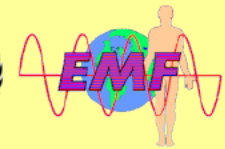




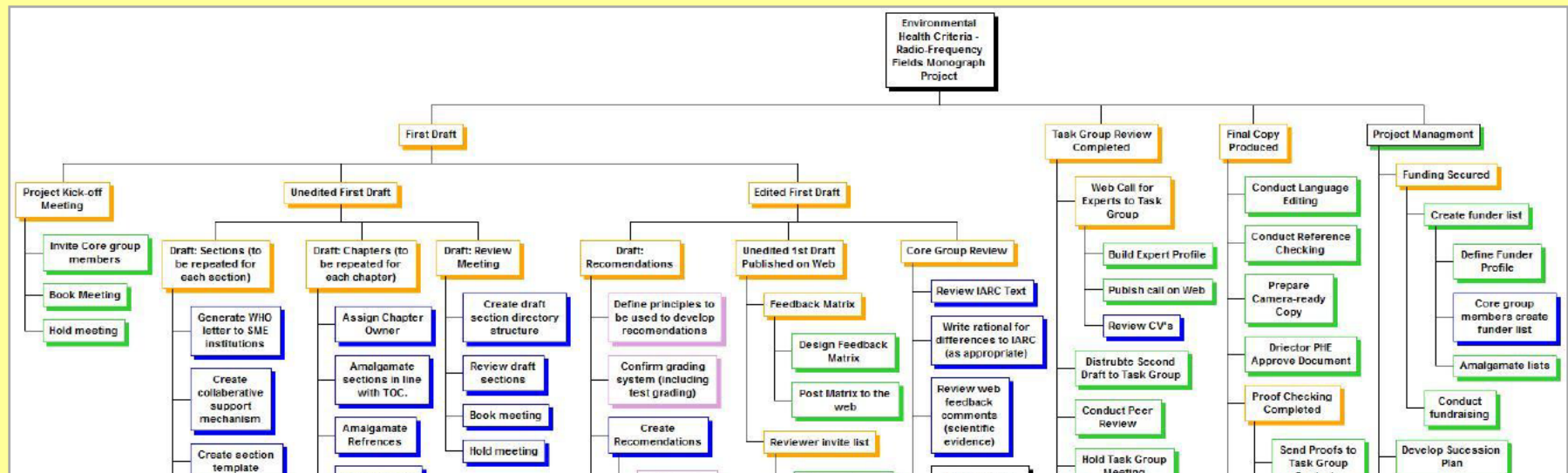
# How?

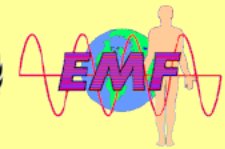
- Work breakdown



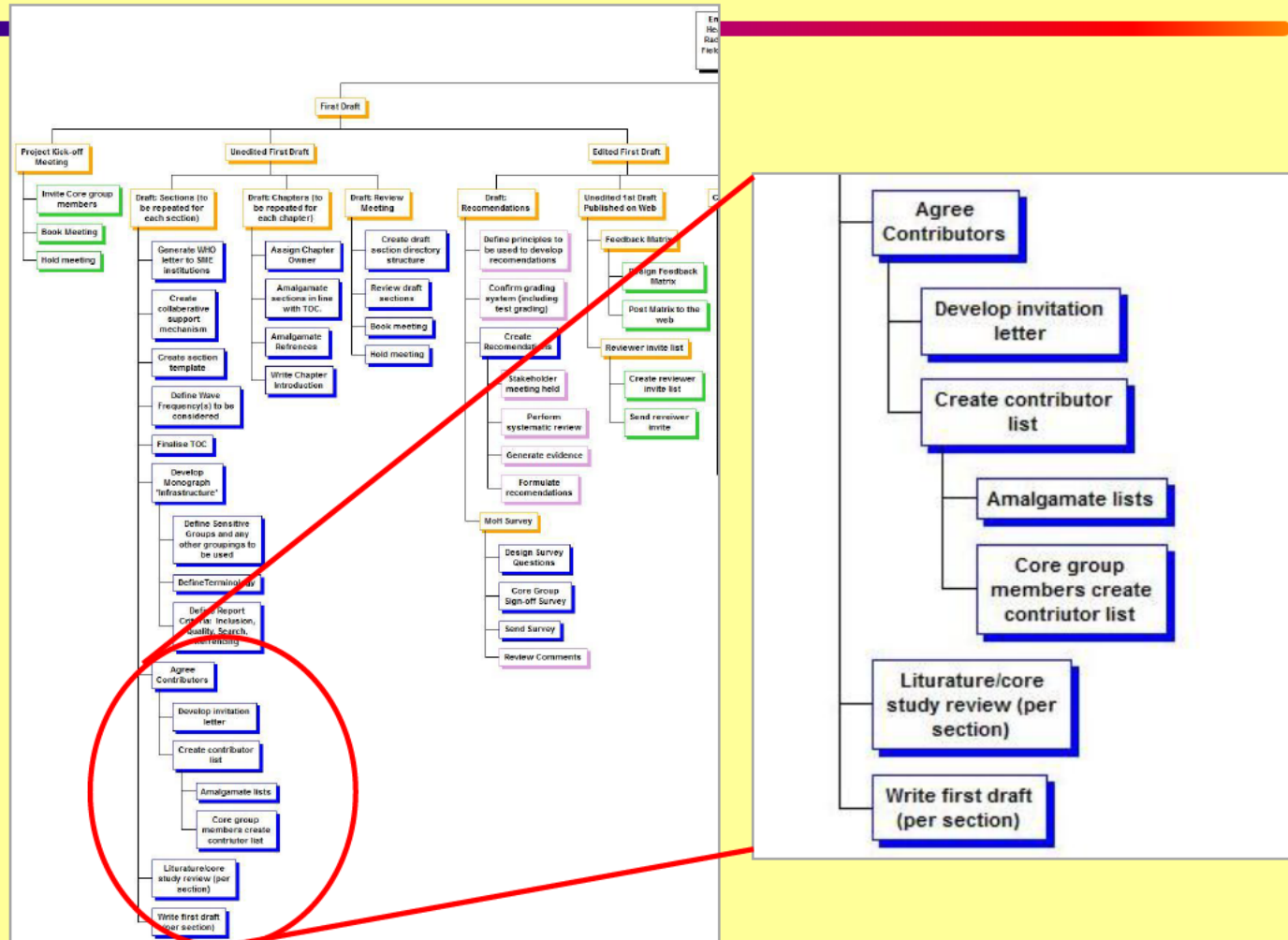


# How?





# How?





# Who?

---

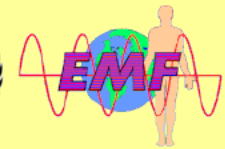
- Additional experts to help drafting sections
  - Giorgio Aicardi
  - Jukka Juutilainen
  - Kerstin Hug
  - Sarah Loughran
  - Carmela Marino
  - James McNamee
  - Martin Röösl
  - Martin Röösl
  - James Rubin
  - Minouk Schoemaker
  - Brahim Selmaoui
  - René de Sèze
  - Zenon Sienkiewicz
  - Myrtill Simko
  - Vijaylaxmi



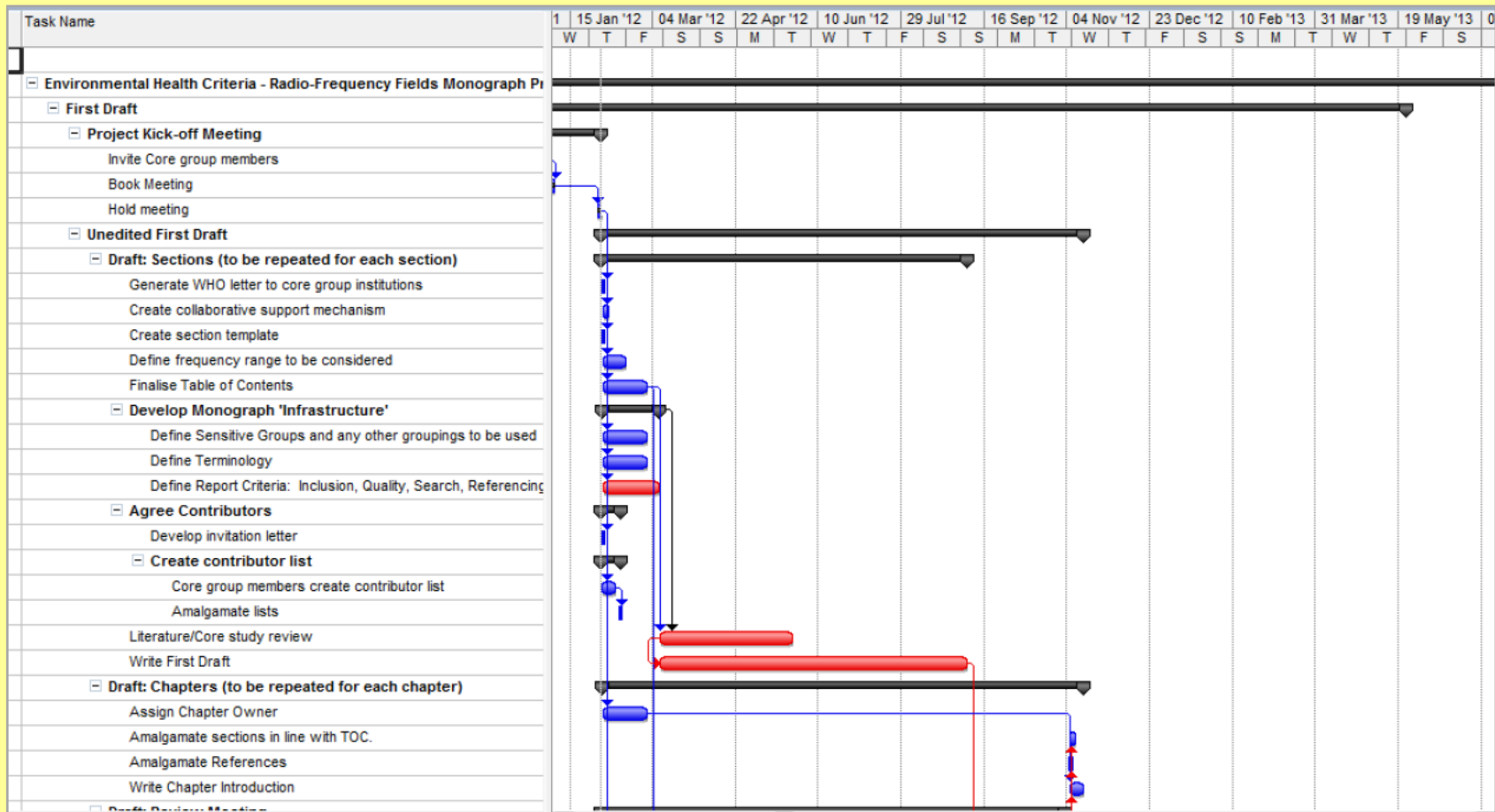
# Table of Contents

---

1. Summary and recommendations
2. Sources, measurements and exposures
3. Electric and magnetic fields inside the body; SAR and heat
4. Biophysical mechanisms; tissue heating
5. Brain physiology and function
6. Auditory, vestibular and ocular function
7. Neuroendocrine system
8. Neurodegenerative disorders
9. Cardiovascular system and thermoregulation
10. Immune system and haematology
11. Fertility, reproduction and development
12. Cancer
13. Health risk assessment
14. Protective measures



# Time line





# Topics

---

- Radiofrequency fields, frequency range: 100 kHz - 300 GHz)
  - Include UWB, pulses, mm-waves
- Sources: RFID, EAS, mobile telephony, radars,...
- Exposure assessment
- Health benefits (hyperthermia, MRI, medical treatments, diathermy, RF ablation surgery): not included



# Data

---

- Starting point: ICNIRP review commissioned by WHO
- Not all parts complete: needs elaboration and update
- Other reviews
- Publications to be retrieved
- How far back?
  - Last EHC from 1993





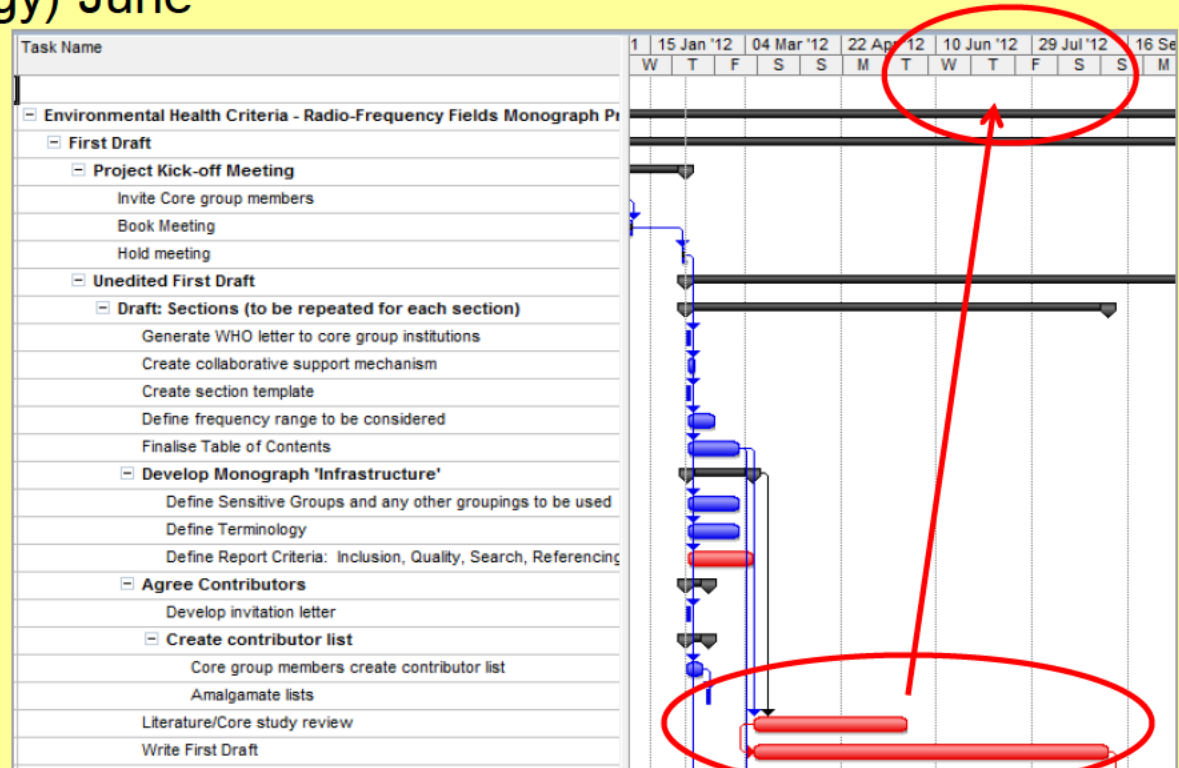
# Basic work

---

- Lot of work done to set a solid framework
  - To ensure transparency and consistency:
    - Quality criteria for systematic literature searches, analysis of papers, review process
  - To ensure efficiency:
    - Editing: pre-defined templates for chapters, tables, references, etc...

# On schedule?

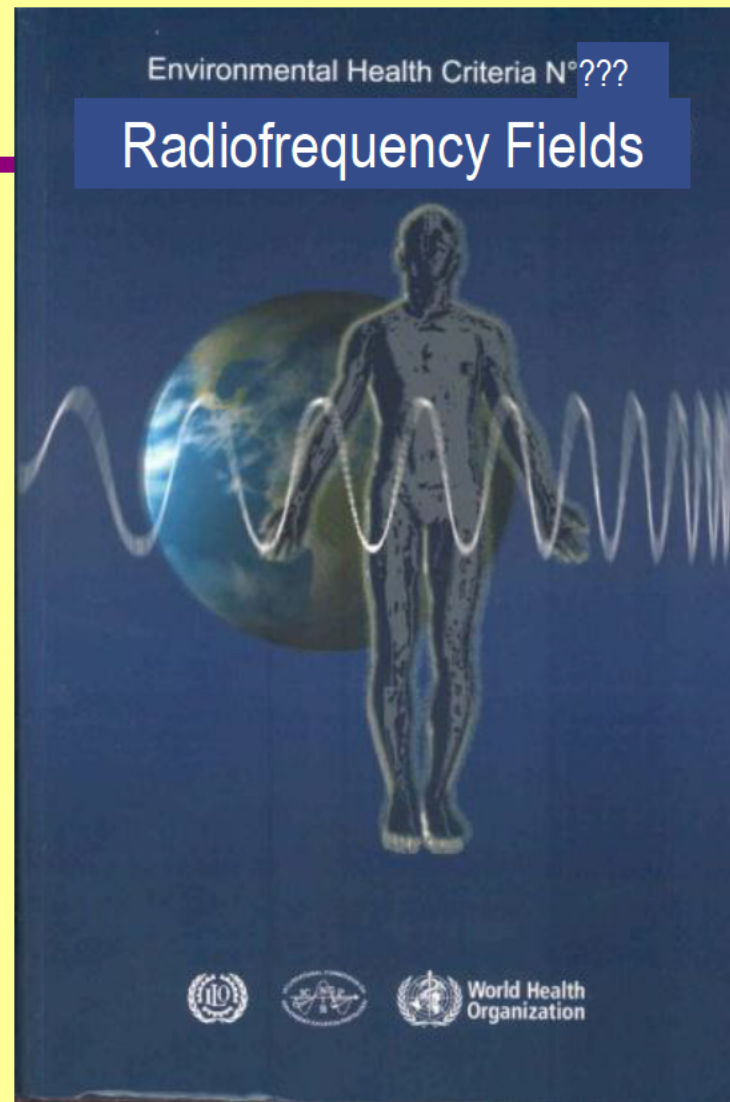
- Almost...
  - First review meeting (human studies) mid-May, next (epidemiology) June





# Prospect

- By mid-2014:



# まとめ その1

1. 環境保健クライテリア（EHC）の章立ては、超低周波電磁界EHCと同様に疾患毎とする。
2. WHOは2012年1月末に7名からなる中心グループを招聘した。
3. 中心グループがタスク会議に提出するEHCの原案を作成する。
4. 中心グループメンバーは原案作成ためのワーキンググループを組織できる。
5. 中心グループ会議では、EHC作成の大枠をwhen, who, howなどの視点で決定した。EHCの発行は2014年の夏の予定。
6. リスク評価を行うタスク会議メンバー構成は未定。
7. 評価する周波数範囲は100kHz～300GHz。超広帯域無線（UWB）、パルス波、ミリ波を含める。

## まとめ その2

8. 評価する対象機器は、携帯電話だけでなく、無線自動認証装置（RFID）、電子商品監視機器（EAS）、レーダを含める。
9. 医療応用に伴うリスクは除外する。
10. 対象となる科学的論文は、2009年に発行された国際非電離放射線防護委員会（ICNIRP）の高周波電磁界に関するレビュー本、所謂ブルーブック（ISBN 978-3-934994-10-2）を基として、それ以外の査読付きの最新論文を収集する。
11. リスク評価の判断材料となる過去の論文は、1993年に出されたEHC No.137まで遡る予定。
12. 最初のEHCの案は、今年9月頃には完成予定。