Superior Health Council

Recommendation 9235

Nuclear accidents, environment and health in the post-Fukushima era: emergency response

Seminar BVS-ABR

Public Communication on Nuclear Emergencies

Brussels, March 4, 2016

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Overview seminar presentation

Gilbert Eggermont , chairman WG SHC

- **Overview of the Advisory Report SHC:**
- **Psycho-Social Consequences**
- **Perception**
- **Communication**
- **Public Participation**

Dynamics of post-Fukushima revision of emergency response

- Off site emergency preparedness is **a gap** in nuclear **safety re-evaluation**
  - ✓ Put forward by EC-ENSREG panel on **stress tests**
  - ✓ 5y later: **Lessons learned** after Fukushima (**11/3/2011)**
  - ✓ Context of analysis of **other** (non-)nuclear **accidents**
  - ✓ **Need** expressed by **Red Cross** Flanders after Fukushima
- Proper initiative of SHC to consider emergency planning as **cornerstone of nuclear safety** in a **broader perspective**

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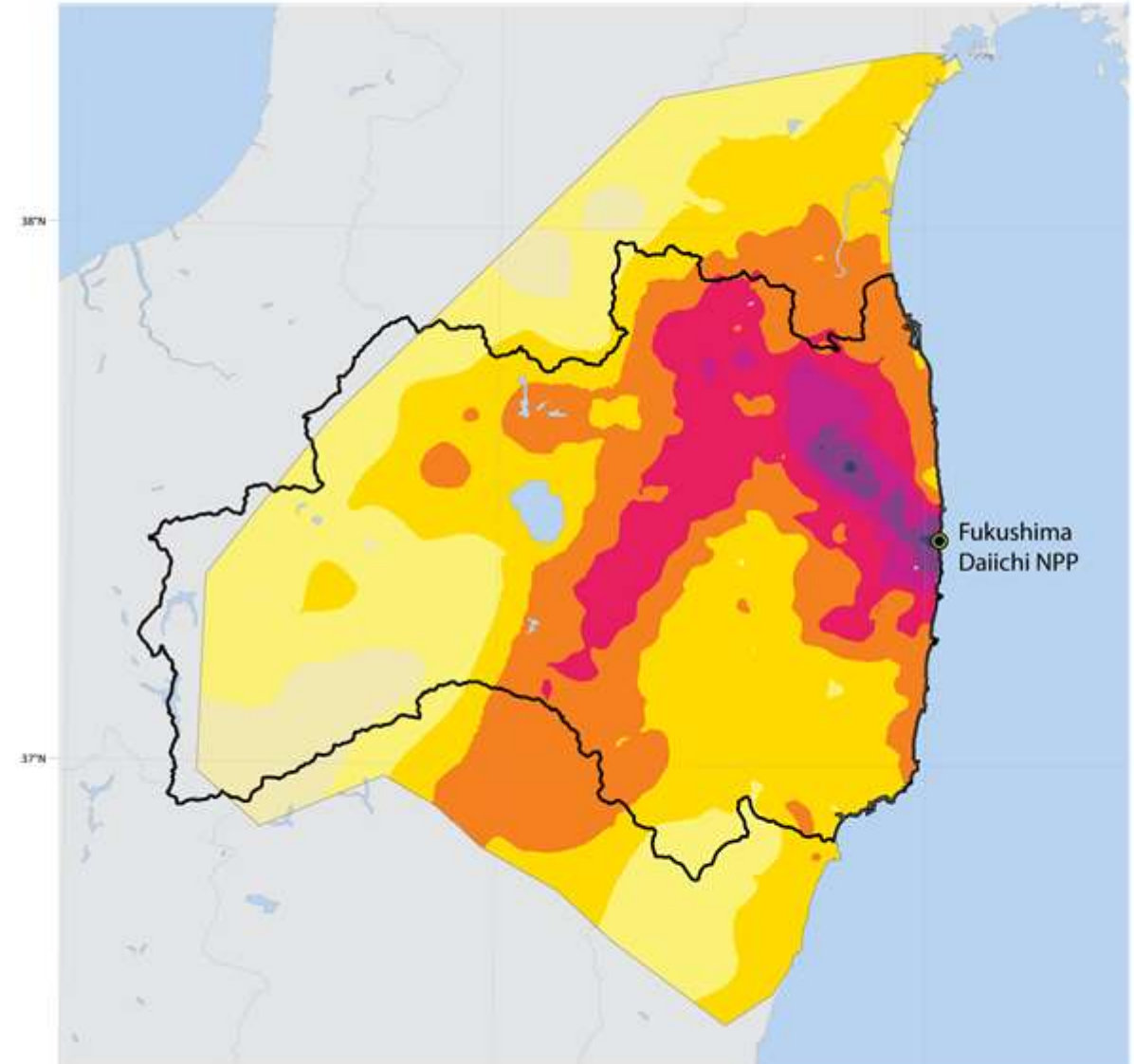
^{137}Cs deposition on the ground (H.Vanmarcke/BVS/UNSCEAR)
(based on measurement data adjusted to 14 June 2011)



Fukushima Prefecture
- **Area: 13 783 km²**
- **Population: 2 million**

Flanders
- **Area: 13 522 km²**
- **Population: 6 million**

Highest number on the scale is 5 MBq/m²

Key question SHC post Fukushima

considering the high population density in Belgium

considering the high density of NPP's: 20 within 100 km

and learning lessons from earlier accidents worldwide

How might a process of careful preparation

prevent or reduce as much as possible

the detrimental effects to man and the environment

in the event of a serious nuclear accident?

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3 y work of SHC has pushed Scientific Council of FANC and the Crisis Centre to take action

core WG : 7 experts with no conflict Interest **(+2*)**

7 disciplines: **risk analysis, nuclear safety, radiation protection, environment, radiobiology, (nuclear)medicine, psychology,** extended with

- **Medical subgroup on Iodine profylaxis:** 1°advice 2015 (SHC 9275)
- **Ad hoc meetings** with specific experts (4+2+3*)
  - ✓ Communication and perception
  - ✓ Crisis centre **(1)** Ministry Internal affairs, SCK.CEN/NERIS **(1)**
  - ✓ International: EC **(1),** Nl (1), **Fr (2)**

(FANC and other competent authorities*)

Output: an 120p report with executive summary, 20 transversal messages/conclusions, 200 references is presented to policy makers, press and **Scientists**

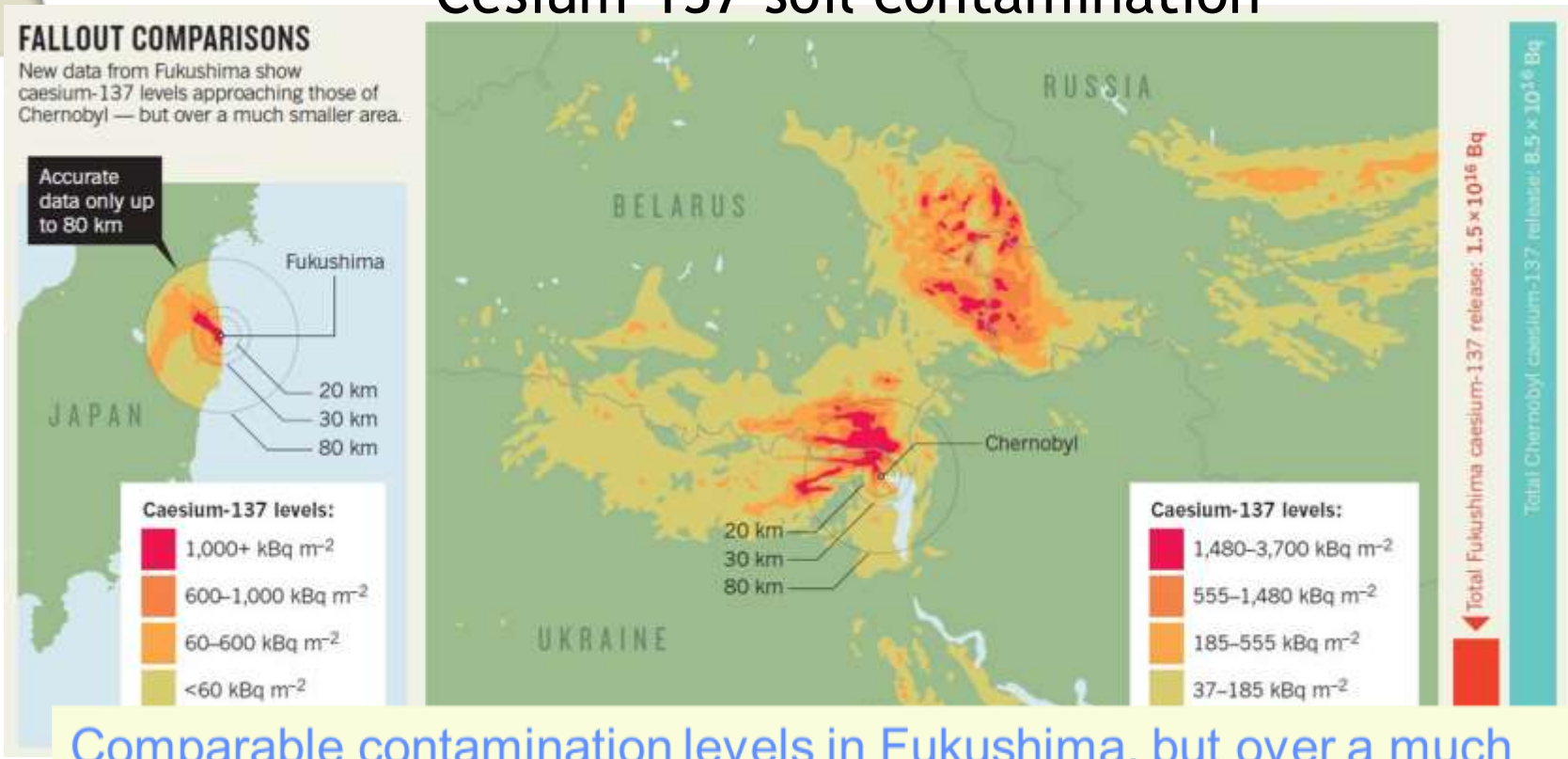
a **Precautionary Strategy**

in Nuclear Emergency Response, with more

Awareness, Preparedness and **Completeness**

in a **Cross Border dimension**

Comparison Fukushima - Chernobyl
Cesium-137 soil contamination



Comparable contamination levels in Fukushima, but over a much smaller area

- The releases and fall-out in sea are not included in the Fukushima figures

Emergency report SHC at a glance (1)

More awareness on risks

1. Serious nuclear accident **can happen** also **in Belgium** ⟹ ***Reconsider emergency planning***
2. Dispersion of **radioactivity** can disturb a **large region and create anxiety**
3. Serious consequences can last for **many years**
4. Prevention of **health effects** is needed including **psycho-social impact**

(2) Complete risk analysis in emergency planning as cornerstone of nuclear safety policy

5. Focus more underlying general failure types as root causes of accidents including supervision
6. Enlarge risk analysis with vulnerability assessment of complex technology/organisation
   - **Population density, traffic, chemical risk, siting**
   - **Scenarios with probability and large consequence**
   - **Aquatic dispersion in ground water and river**
   - **Human interaction in emergency planning**

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Prepare more adequate intervention measures over distances of relevance – transparency (3)

7. Extend planning zones
   - **Sheltering** to at least 100km
   - **Iodine distribution** over at least 100 km
   - **Evacuation** over at least 20km

with more care for

8. **Communication with population**
   - **Bilateral with 2 directions** + active role **social media**
   - **Transparent** and balanced ⇒ **RISCOM model**

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Improve coordination and develop a long term strategy for recovery and relocation (4)

9. More attention for medical coördination: >Iodine
   - **Vulnerable people**
   - **Psychological effects of rupture of living conditions**
   - **Social concerns (family, animals in evacuated areas,..)**
10. Social tissue can be disturbed over decennia

    after end of direct threats and transition period starts **long term recovery** → **CODIRPA - ASN**, France
   - Cleaning contaminated areas and nuclear waste
   - Return of evacuees

Involve citizen in emergency preparation to make response more adequate (5)

10. Crisis can become worser through interaction with other risks and failing communication
11. Emergency planning: continuous participative learning proces of transdisciplinary nature
    - **Should start and be integrated at school**
    - **Integrate actively concern and indications of people**

    → **Vulnerability analysis with citizen**
13. Enough elements for revision of crisis response

Evaluate periodically crisis centre

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A response to a serious nuclear accident requires more Europe and international support (6)

14. Any serious nuclear accident will have a cross border impact in particular for Belgium

Strenghten international collaboration

15. Better harmony in nuclear safety (and emergency)
    - Cross border harmonisation of liability and insurances
    - Nuclear waste policy approach for serious accidents
    - Protect external intervention and clean-up workers
    - Strenghten nuclear safety collaboration + EU authority

Overview

- Advisory Report SHC

- **Psycho-Social consequences**
- Perception
- Communication
- Public Participation

Psycho-Social effects for population, helpers and crisis staff can affect adequacy of emergency response

- Health impact is larger than exposure effects of IR
- Psychiatric disorders are related to concerns
  - **Anxiety for IR effects of long term exposure**
  - **Uncertainty on future**
  - **Sheltering: treath of loss of safe reliable environment**
  - **Evacuation: problem of leaving**
    - **relatives, house, goods, care, clothing, medication**
    - **animals and cattle** **ref. Nobel Prize Svetl.Aleksijevitsj**
  - **Uncertainty on return, confusion also on iodine**
  - **Stigma's related to exposure** **food, products, people, evacuees**

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Overview

- Advisory Report
- Psycho-Social Consequences

- **Perception**
- Communication
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Risk Perception: Threats and fear dominate on facts for experts as well as citizen while values are crucial

Risk: *A situation or event in which something of human value (including humans themselves) has been put at stake and where the outcome is uncertain* ***>> facts***

- Different value references -> range of risk perception

Cost of serious nuclear accident can be the order of Belgian BNP

Citizen and experts colour risk differently: ex. fear for panic

At stake: responsibility of supervising authority to guarantee the common good (**CI procedure**), review nuclear energy siting (German Eth. Com.)

Independancy, quality and **critical reflection has influence** on **confidence**

Overview

- Advisory Report
- Psycho-Social Consquences
- Perception

- **Communication**
- Public Participation

Risk communication Confrontation and attempt to bridge opposing perceptions in open dialogue

Risk Communication (in crisis)is:

- Continuing ethical justification of technological risk starting in normal times and aiming to increase awareness
- Part of decision making at three levels: within the crisis centre, the public response and the helpers
- Only effective when **bilateral**, legitimate and authentic
- not only telling the facts or truth, but also discussing the context of (dis)advantages, the hidden agenda or interests

challenge is how to guarantee transparency

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Risk communication

fails if not offering perspectives

- Main problem in Fukushima is how to adapt to new reality, to live with radioactive contamination
- Confidence for crisis response should be build in peace time
- Emergency communication needs **planning** with
  - **Long term dimension**
  - **Active use of new social media**
  - **Vulnerability analysis to identify public concerns and needs**
- Avoid confusion and distrust in crisis managers

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Overview

- Advisory Report
- Psycho-Social Consequences
- Perception
- Communication

- **Public Participation**

Public participation creates new opportunities for accident response and indicates vulnerabilities

- **Legally structured involvement** on all elements of importance for nuclear safety (CLI(Com.Loc.Inform) et Assoc. Nat.CLI in France) with resources for **critical expertise**
- Allows local vulnerability analysis, **identifying problematic people**
- Allows to better define a long term strategy at all levels
  - **Who pays? Under which circumstances can people work, live, play in contaminated areas.** **How can men adapt to new reality?**
  - **Traffic infrastructure, energy vulnerability, industrial risks?**
  - **What are the opportunities when return becomes impossible?**

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to conclude on the

Cornerstone of Nuclear Safety

In nuclear energy, nuclear safety and emergency response complex questions arise with numerous uncertainties that confront values of people

for such policy issues the Superior Health Council is opting for a

precautionary strategy

which implies a broader participative approach involving the public within a legal framing, guaranteeing independancy of expertise and control, and reinforcing European collaboration

The SHC thanks you for your attention and BVS-ABR for the seminar opportunity

While referring the collaborators of the core working group:

Véronique De Gucht, François Jamar, Jean-Paul Samain, Patrick Smeesters, Hans Vanmarcke, Rapporteur Wim Passchier and Chairman Gilbert Eggermont

and thanking ad-hoc invited experts and investigation journalist, collaborators of competent authorities, scientific secretariat , translators , the validating College, the PR cell and Ethical comittee, for their contribution to this Opinion Report 9235