

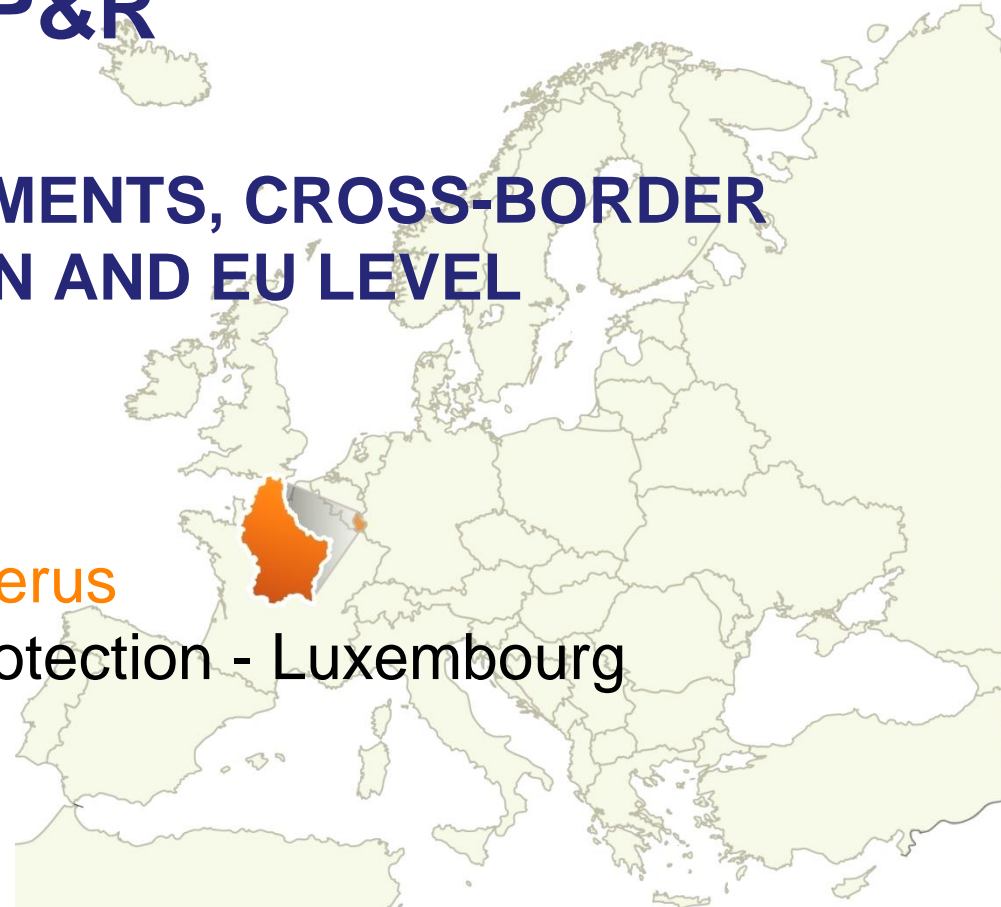


Identification of gaps/difficulties in EP&R

NATIONAL ARRANGEMENTS, CROSS-BORDER COOPERATION AND EU LEVEL

Presentation by Patrick Majerus

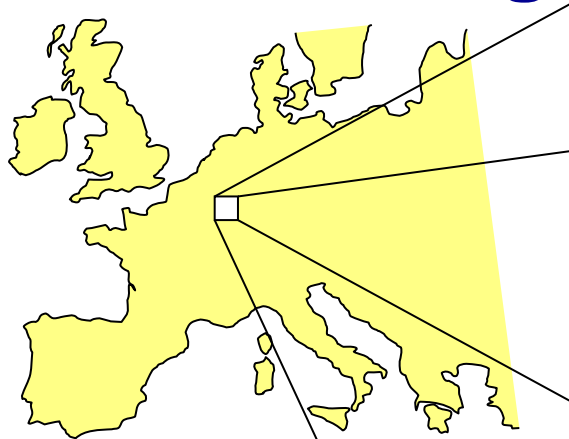
Department of Radiation Protection - Luxembourg





Situation of

Luxembourg related to a nuclear crisis



10 NPP's within 250 km

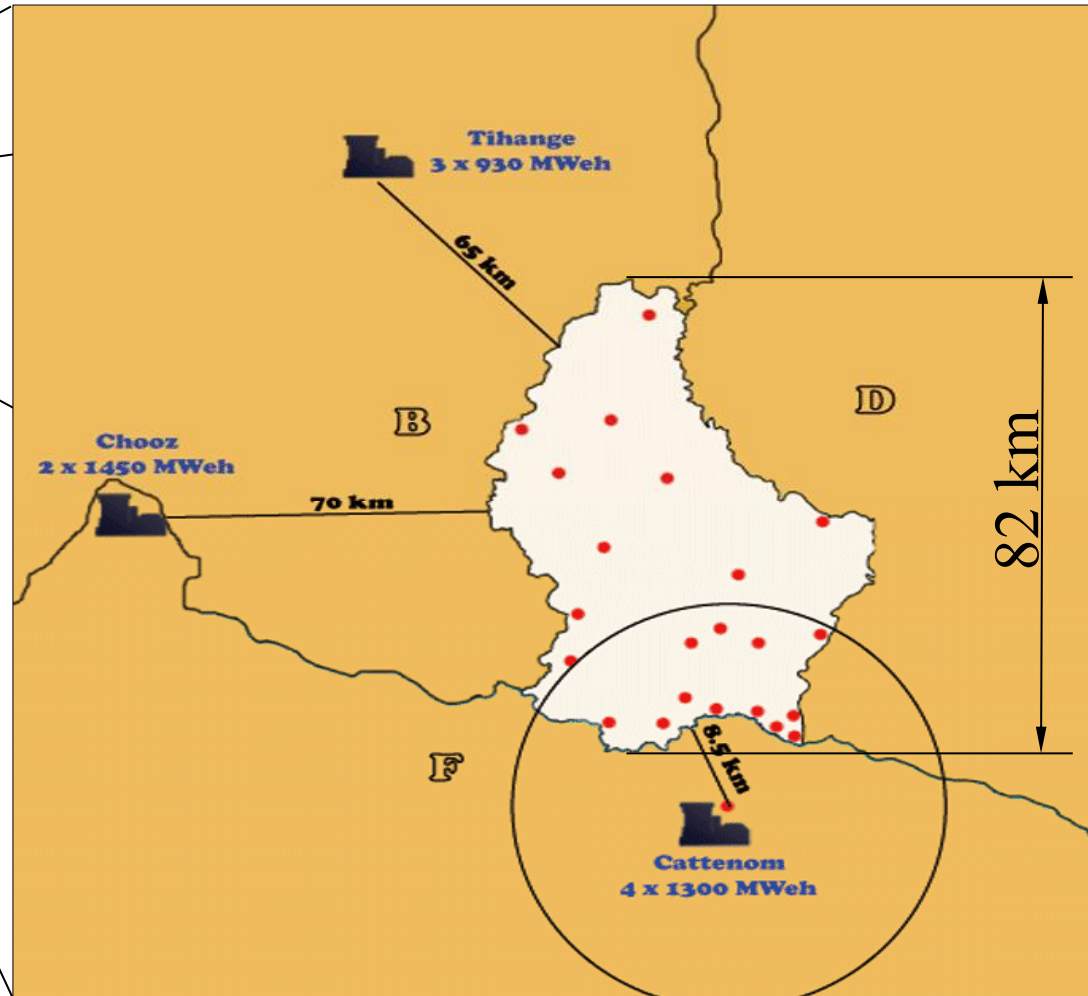
Total population: 537 000
Foreign population: 238 800 (44.5 %)
Approx. 170 nationalities

Working population: 365 400
Commuters: 161 000

® STATEC 2013

Relevant for crisis management.

Decision takers: 5





Radiological assessment and alerting capacities



online radiological analyses of the drinking water (gamma spectra)



online ambient dose rate



in-situ measurement of river water (gamma total) - online



continuous aerosol sampling, artificial alpha & beta - online



continuous aerosol sampling and online γ -spectroscopy



high volume aerosol sampling - offline



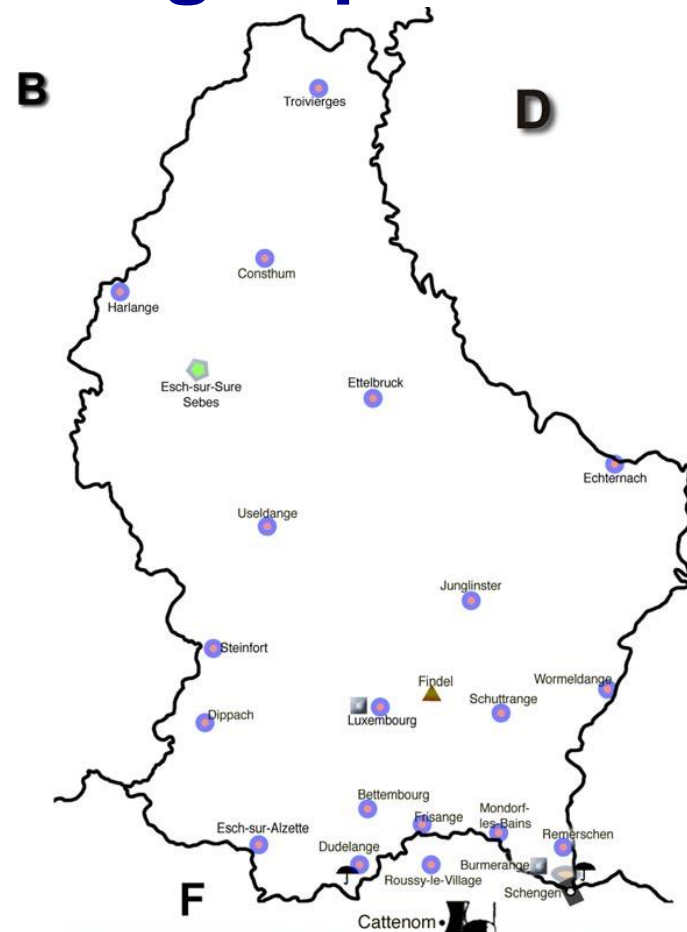
automatic sampling of river water - offline



meteorological data - online



NPP - Cattenom



www.radioprotection.lu

<http://eurdep.jrc.ec.europa.eu>

Further improvements
in progress



Each accident is different

- Uncertainty related to the reactor.
- Quantity and quality (nuclide vector) of releases.
- Time to release.
- Weather conditions.
- Appropriateness of a protective measure



No “one size fits all” solution

Preparedness ≠ Response



Some preparedness elements in Luxembourg

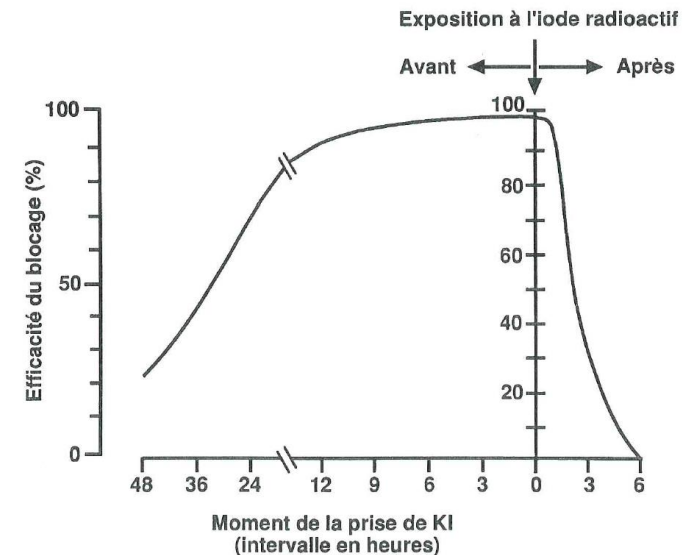
- Iodine prophylaxis
- Sheltering
- Evacuation

**A new plan has been developed,
presently under approval.**



Iodine prophylaxis

- Relatively easy and cheap.
- Protects only against radioactive Iodine.
- Correct moment of intake is important.
- Relatively few serious side effects.

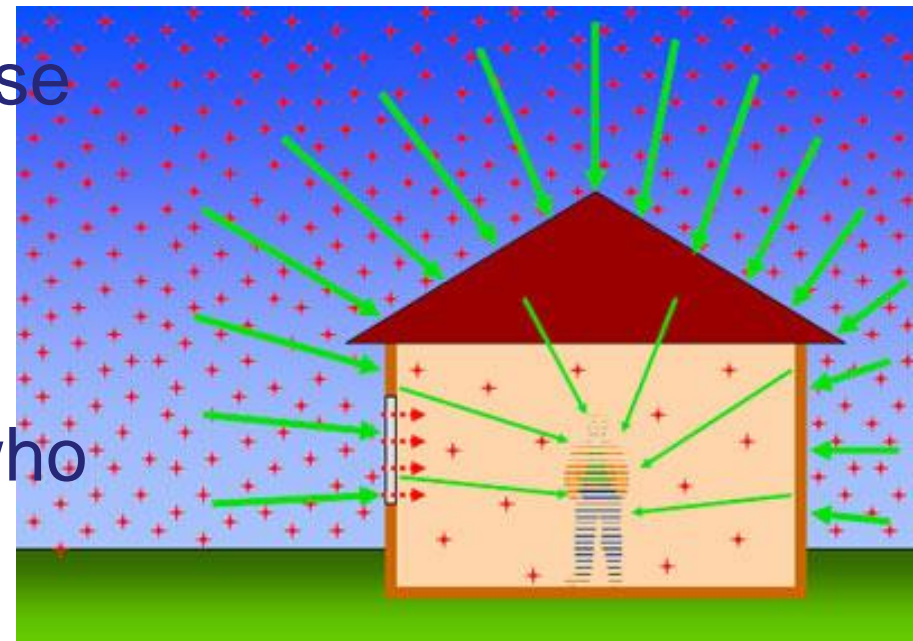


- Stockpiles in the municipalities in the 10-25 km zone, centralized stocks above.
- New specific complementary Iodine prophylaxis program since end of 2001
 - KI stockpiles in all schools, including nursery schools
 - pre-distribution of KI tablets to all newborns.



Sheltering

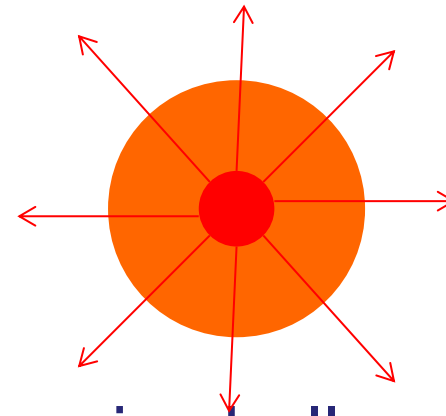
- Relatively easy and fast to implement.
- Does not avoid but may significantly reduce exposure (10-30% inside).
- Limited in time (max 48 hours).
- May be applied to avoid evacuation during the release phase.
- Particular arrangements necessary for hospitals, special industries, people who need assistance, etc.....





Evacuation

- May allows to avoid exposure
- Severe side effects expected.
- Difficult in case of large populations (10% of the population in Luxembourg live between 10 and 15 km, over 50% up to 30 km).



- Time taking.

- Organization of reception centres is challenging.



Some difficulties seen at recent regional exercises

- *“Transparency culture” between the different authorities involved varies substantially;*
- *Language barriers dramatically slow down information exchange. (consecutive translation).*
- *Balance the need for rapid information of the public against the necessity to issue coherent messages (> 7 official communication cells!)*

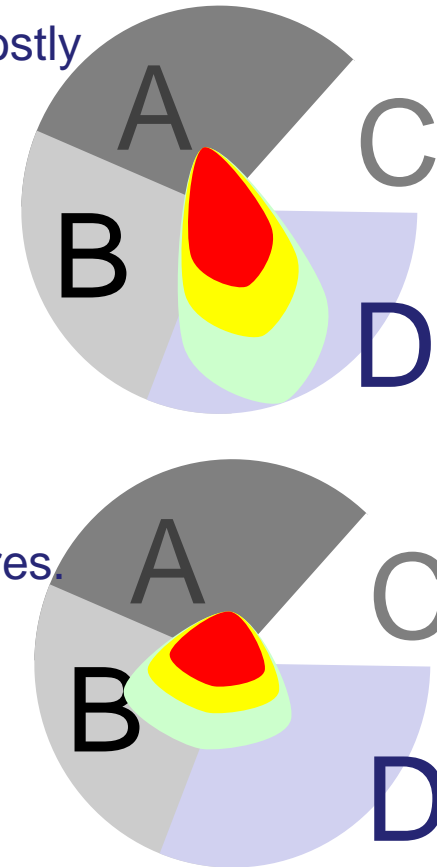


EU-Level - Differences in preparedness arrangements

Emergency planning has evolved in all states over many years, mostly without giving great priority to cross-border issues. This has led to differences, sometimes significant, in:

- Criteria for deciding protective actions.
- Methods for assessing source terms.
- Methods for radiological impact assessment and dispersion modeling.
- Definitions of emergency planning zones.
- Definitions of protective actions and related operational measures. (the same action may not mean the same measure in another country)

Explaining those differences to the public and their scientific reasons before any accident is “at least” challenging!

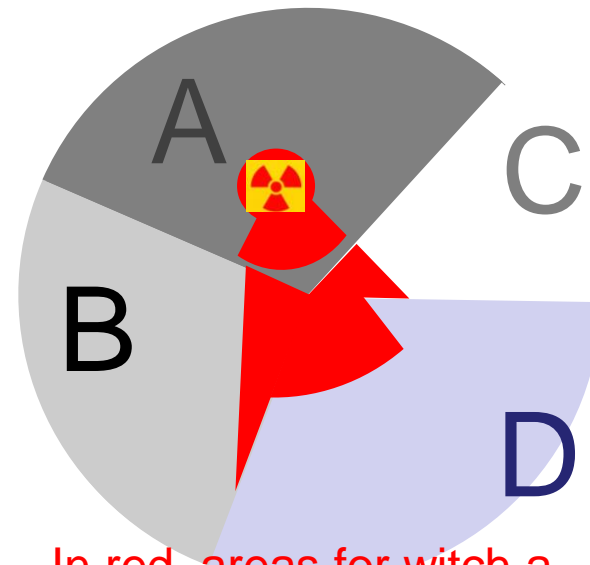




Consequence for a nuclear accident

In case of an accident with cross border impact the differences in preparedness lead to decisions for protective actions that vary widely between countries:

- Different areas concerned.
- Different timescales for execution.
- Different groups targeted (e.g. children).
- Different operational measures.



In red, areas for which a protective action is decided

Explaining those differences to the public during the crisis is impossible!



Profit from your stay to visit!

