GT-CIPR

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Le champ d'application (scope) des nouvelles recommandations de la CIPR (RP05)

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RP05 – Champ d'application

Content of RP05

- **Chapter 2 : Aim and Scope of the Recommendations**
  - Controllable source
  - Justification
  - Sources within the scope
  - Exclusion/authorization

- **Chapter 8 : Exclusion**
  - Artificial radionuclides
  - Natural radionuclides
  - Cosmic rays

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Controllable Source

- The recommendations can apply only to situations in which either the source […] or the pathway leading to the dose […] can be controlled by some reasonable means = controllable source (§15)

- Source = the cause of an exposure, not necessarily a physical source of radiation (§16)

  Both natural or artificial sources, insofar they are controllable (§23)

- Controllable = ? (cf. exclusion)

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Justification (§18)

- To introduce or continue a particular practice
- Judgements […] are important ; Periodically re-examined
- Responsibility […] falls on governments or government agencies
- Benefit in the broadest sense to the society and thus not to each individual
- Strategic, economic, defence and other reasons
- RP = only one input

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Justification (§18 & 20)

- While justification is a prerequisite of the complete system of RP, the methods of ensuring justification are largely outside of these Recommendations
- System applies to practices that have been declared justified
- System may also be applied in situations where the practice has not been declared justified

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Justification of patients exposure (§19)

- Calls for different and more detailed approach (see 9.1)
- Lies more often with profession rather than with government
- Responsibility for the justification of the use of a particular procedure falls on the relevant medical practitioner

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Sources within the scope (§21 & 22)

- Normal situations (everyday situations)

- Existing controllable situations (natural or artificial, resulting from previous practices or emergencies, usually controlled by action to modify the pathways of exposure, justification not relevant)

- Emergency situations (unexpected situations requiring urgent action)

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Exclusion (§24)

- Sources for which resulting levels of annual effective dose are very low or combination of dose and difficulty of applying control are such that sources can legitimately be excluded completely from the scope
- Concept essential for the successful application of the system
- Both natural or artificial sources (although largely natural)
- Numerical criteria would assist

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Exclusion (§25 & 26)

- Sources and exposures that are not excluded are within the scope of the system of protection
- Should be subject to appropriate authorization
- Regulatory provisions may be unnecessary = exemption

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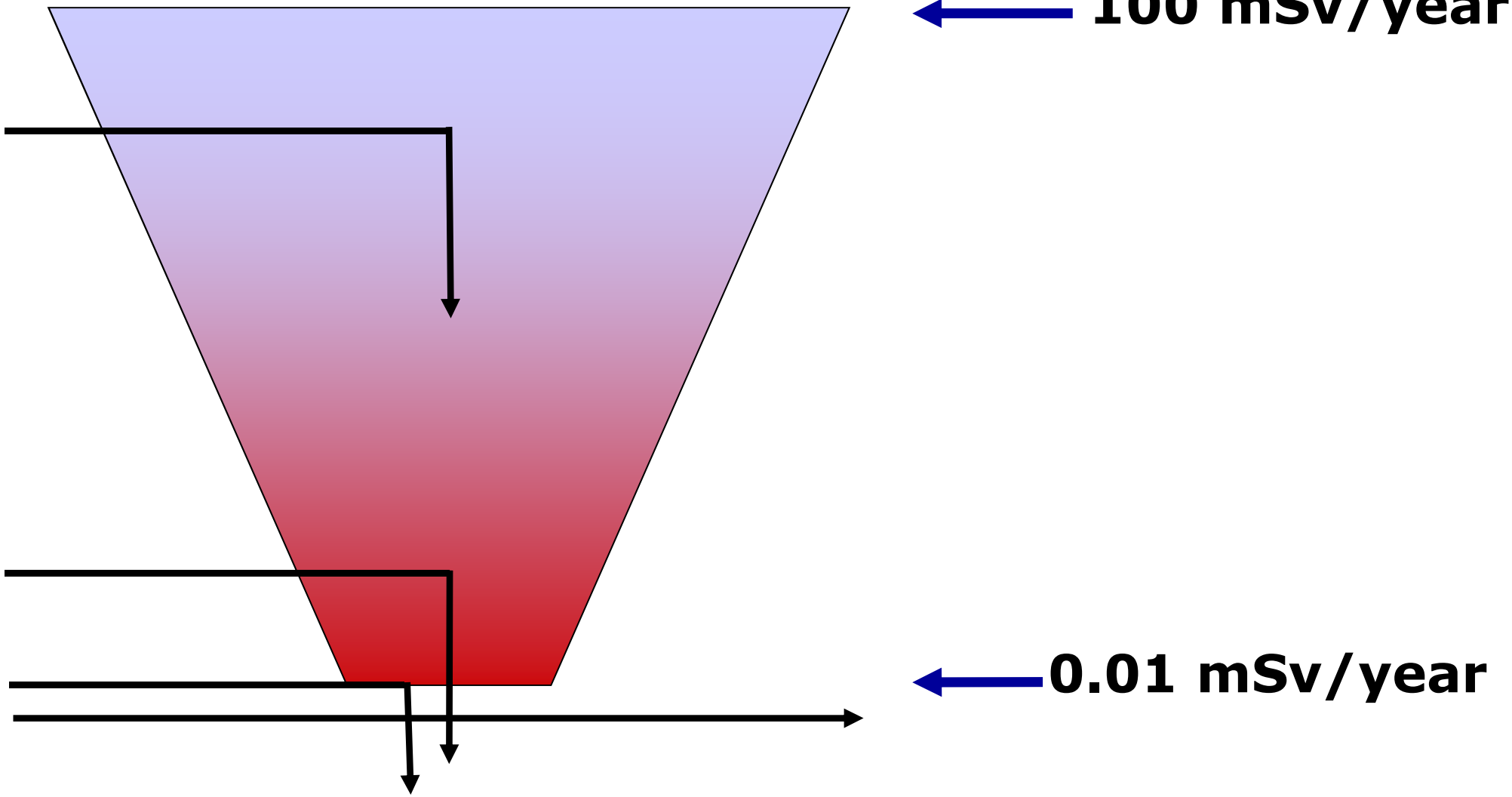
Exemption (§25 à 28)

- Regulatory provisions may be unnecessary = exemption
- Exemption = a form of authorization
- Material exempted remains subject to the system, without further regulatory control
- Exemption levels
- Levels should enable exemption of sources including wastes containing very low levels of activity
- Graded approach

The need for action
The need for optimisation



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Exclusion (chapter 8)

- Avoid excessive regulation (§204)
- Artificial radionuclides (§205, 206) + Table 10
- Natural radionuclides (§207 to 210) + Table 10
- Cosmic rays (§ 211, 212)

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Exclusion / artificial radionuclides

- Starting point = minimal constraint (10 µSv/a)

- Also used for:
  - exemptions levels (BSS115, Euratom directive)
  - exemption levels for bulk materials (RS-G-1.7)
  - international trade of foodstuffs (CODEX)

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Exclusion / artificial radionuclides

- Whatever the scenario, no activity concentration proposed below 0.1 Bq.g^{-1} (β/γ) or 0.01 Bq.g^{-1} (α)

- These values provide a practical definition of what is considered radioactive and the level at which materials are to be within the scope

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Exclusion / natural radionuclides

- Most natural materials are more or less radioactive
- Many situation where control is impracticable
- Exclusion when not amenable to control

- Principal exposure = K40, decay series of U238 and Th232
- Actions are disruptive and require considerable resources

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Exclusion / natural radionuclides

- A set of exclusion values (cf. UNSCEAR-2000 and IAEA-DS161)
- 1 Bq.g^{-1} (decay series of U238 and Th232, Rn222 excluded) and 10 Bq.g^{-1} (K40)
- Based on the upper end of the natural range

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Exclusion / cosmic rays

- At ground level = not controllable ⇒ excluded
- High altitude: limiting time is the only way
- Aircrew + couriers = as occupational exposure
- Passengers = not controllable ⇒ excluded

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RS-G-1.7 de l'AIEA (DS161)

- Septembre 2000 : résolution GC(44)/RES/15 : développer des critères radiologiques pour les radionucléides à vie longue dans les marchandises (aliments et bois)

- RS-G-1.7 "Application des concepts d'exclusion, exemption et libération"

- Ne s'applique pas aux aliments, Rn, K40 dans corps humain, matériaux transportés selon les règles de l'AIEA

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RS-G-1.7 de l'AIEA (DS161)

- Critères pour le commerce / Définition du champ
- 2 jeux de valeurs
- Exclusion : radionucléides naturels (10 $Bq.g^{-1}$ pour K40, 1 $Bq.g^{-1}$ pour autres)
- Exemption : radionucléides artificiels (0,01 à 10000 $Bq.g^{-1}$ selon radionucléide) ; bulk materials

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CODEX ALIMENTARIUS (FAO + OMS)

- Valeurs indicatives pour le commerce international des denrées alimentaires
- Seulement radionucléides artificiels (naturels non maîtrisables)
- De 0,001 à 10 $Bq.g^{-1}$ selon la série de radionucléides
- < RS-G-1.7 sauf I129, C14, Tn99, Co60, Cs134/137)

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CODEX ALIMENTARIUS (FAO + OMS)

- Critère dosimétrique = 1 mSv/an (CIPR 82)
- Ratio de consommation après un évènement radiologique (10% la 1ère année, diminue ensuite)
- Importation occasionnelle ⇒ dose de l'ordre de 10 µSv/an
- Valeurs plus contraignantes pour territoires contaminés
- Denrées < valeurs = propres (safe) à la consommation humaine

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Discussion : RS-G-1.7

- Consensus laborieux

- Approche quantitative de l'exclusion (valeurs génériques)
- 2 concepts différents pour la même idée (exclusion-exemption)

Mais :

- Exclusion réservée aux radionucléides naturels
- Ne s'applique pas aux denrées alimentaires

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Discussion : CODEX

- Certaines valeurs moins contraignantes pour les aliments que pour les autres produits

- Ambiguïté lorsque contamination < valeurs : denrées saines au lieu de commerce sans contrainte

RP05 – Champ d'application

Discussion : RP05

- Exclusion pour radionucléides naturels et artificiels (définition de la radioactivité)
- Applicable à toutes les situations (y.c. alimentaires)
- Certaines valeurs moins contraignantes que RS-G-1.7
- Dans certains cas exposition >> 10 µSv/an