



The ICRP's Current Position & Intentions towards radiological protection of the environment

David Coplestone (EA)



Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL





Outline

- ▣ Current ICRP recommendations
- ▣ Reference Animals and Plants
- ▣ ICRP work programme



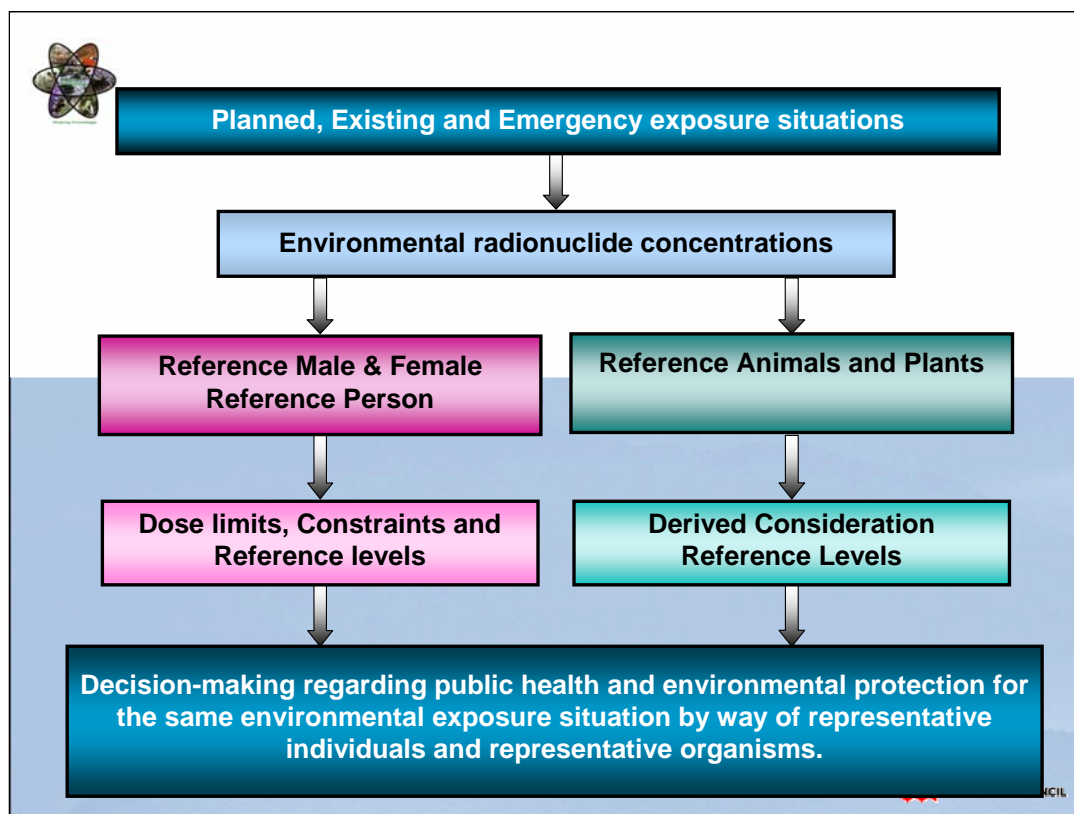
2007 Recommendations

- ICRP (Publication 103) recognised
 - Need for advice and guidance
 - Lack of consistency at an international level
 - More proactive approach needed
 - Complex nature of environmental protection
 - No “dose limits”
 - Pragmatic approach, which can develop
 - Need to develop a clearer framework
 - Assess exposure – dose – effect relationships



How?

- ▣ Reference Animals and Plants
 - ▣ Analogous to “reference person”





RAPs

▣ Reference Animal or Plant

- ▣ *“A hypothetical entity, with the assumed basic biological characteristics of a particular type of animal or plant, as described to the generality of the taxonomic level of family, with defined anatomical, physiological, and life-history properties, that can be used for the purposes of relating exposure to dose, and dose to effect, for that type of living organism.”*



RAPs

▣ Terrestrial

- ▣ Bee
- ▣ Deer
- ▣ Duck
- ▣ Earthworm
- ▣ Frog
- ▣ Pine Tree
- ▣ Rat
- ▣ Wild Grass

▣ Aquatic

- ▣ Crab
- ▣ Flatfish
- ▣ Trout
- ▣ Brown Seaweed



RAPs

▣ Basic characteristics (deer)

- ▣ Size and weight (245kg, 130 x 60 x 60 cm)
- ▣ Feeding habits
- ▣ Iteroparous (survive and reproduce over generations)
- ▣ Low fecundity
- ▣ Known biological effects of radiation





Transfer

- ▣ Task group
- ▣ Report drafted and should go for public consultation over the summer
- ▣ Provides concentration ratios for RAPs and lifestages
- ▣ Data from online wildlife transfer database

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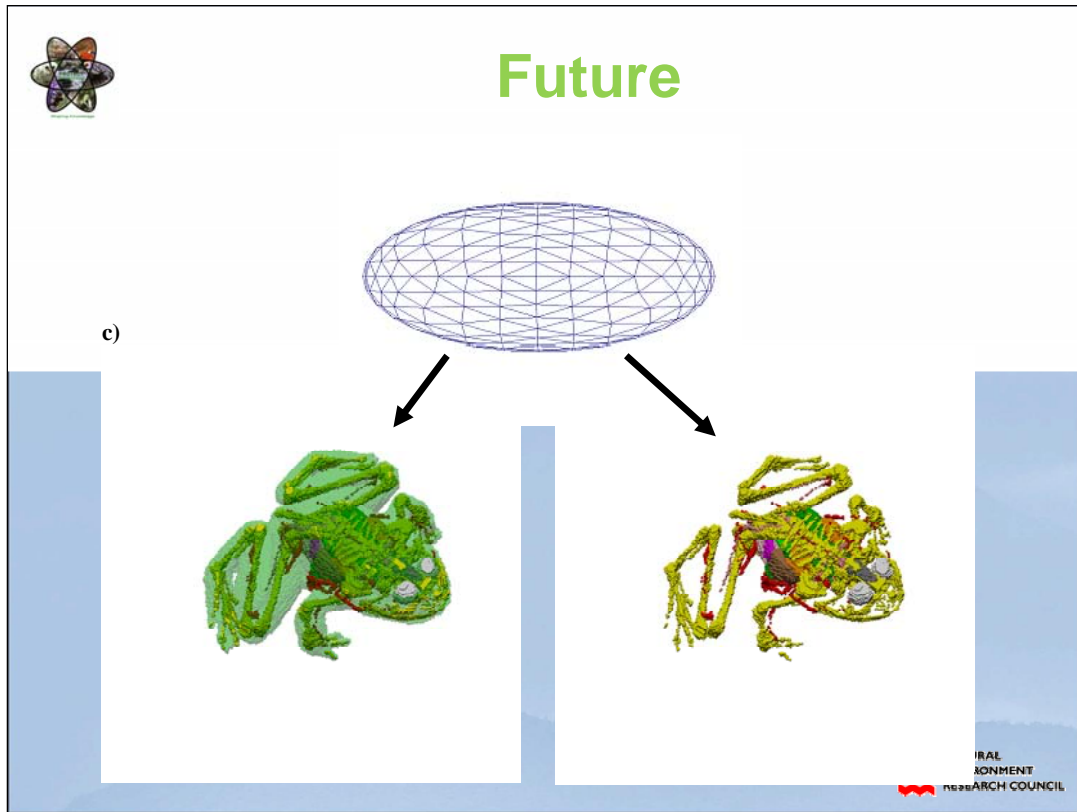


Dosimetry

- ▣ Original Task Group
- ▣ Initial work on dosimetry incorporated in 108
- ▣ New TG – more realistic dosimetry for RAPs
 - ▣ Radon doses
 - ▣ Voxel Phantoms
 - ▣ Effect of non-homogenous distribution on doses

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Effects

- ▣ As part of ICRP 108, effects considered
- ▣ No dose 'limits' but still need something to compare to
 - ▣ ...background
 - ▣ ...derived consideration reference levels

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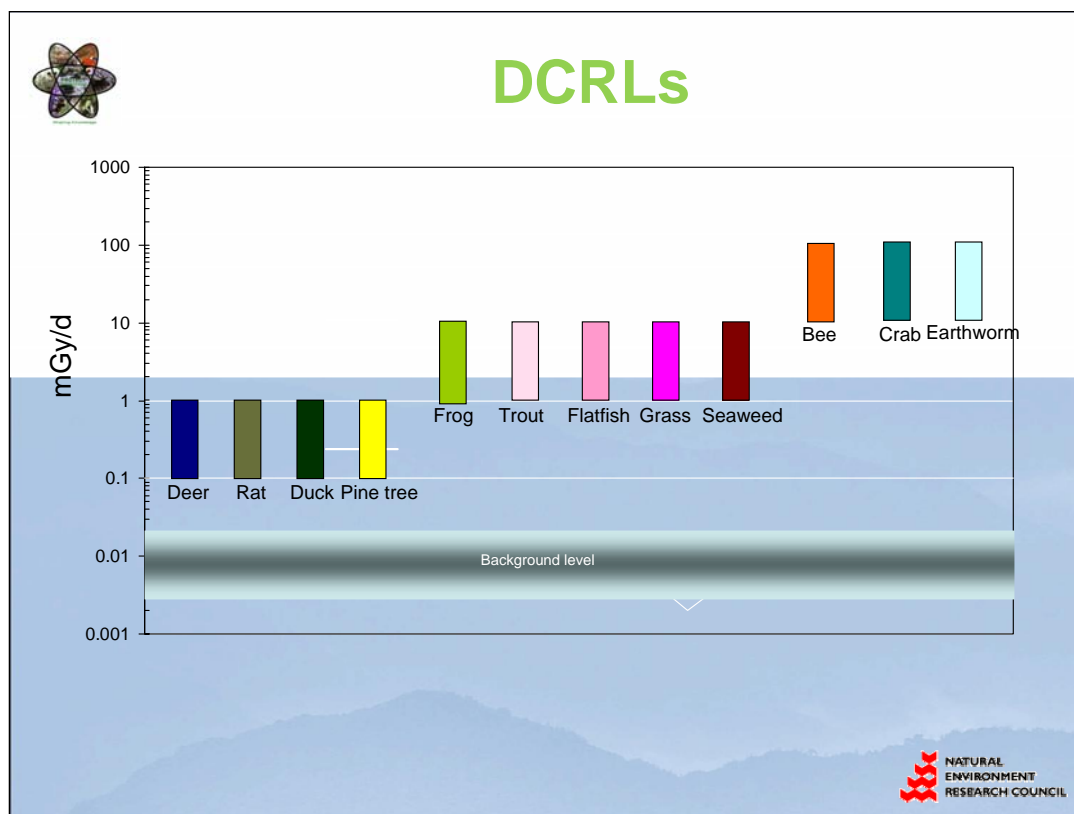




DCRLs

■ Derived Consideration Reference Levels

- *“A band of dose rate within which there is likely to be some chance of deleterious effects of ionising radiation occurring to individuals of that type of RAP (derived from a knowledge of expected biological effects for that type of organism) that, when considered together with other relevant information, can be used as a point of reference to optimise the level of effort expended on environmental protection, dependent upon the overall management objectives and the relevant exposure situation.”*





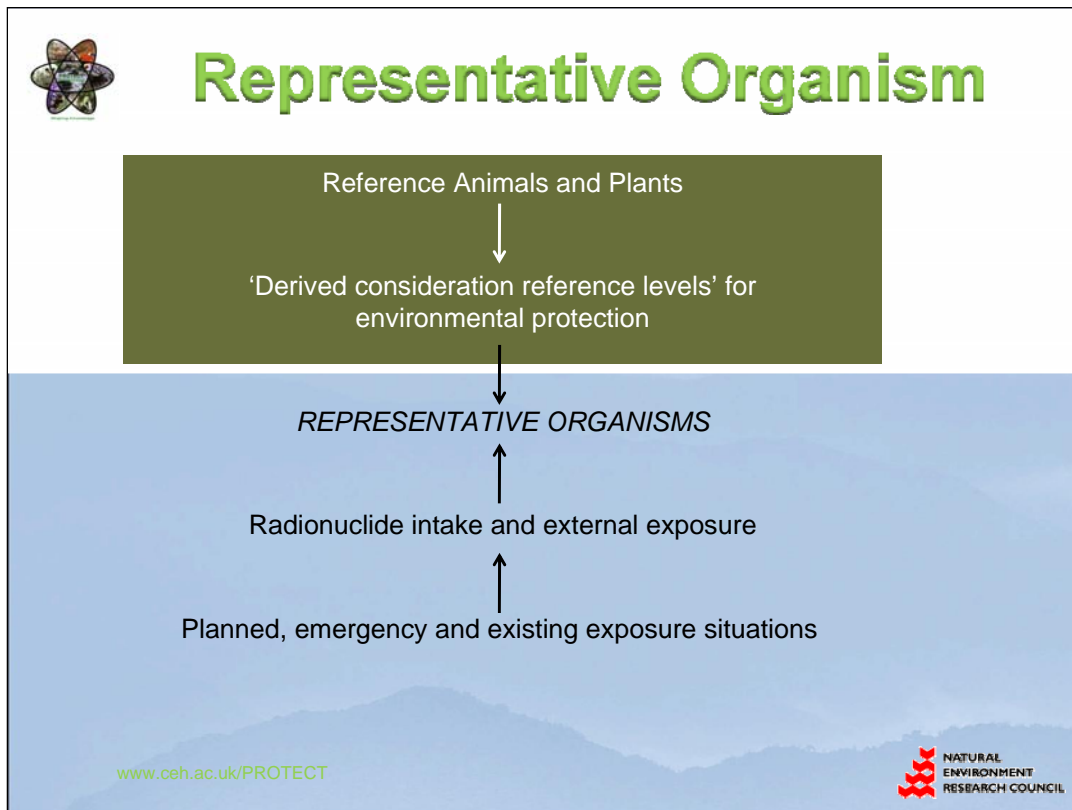
RBE?

- ▣ Radiation weighting factors
 - ▣ Provoke lots of discussion
 - ▣ Subgroup working on this
 - ▣ Report to come



Application

- ▣ Provision of advice on how to use the RAP framework
- ▣ Likely to use 'representative organism' concept





Integration

- Integrating the ICRP systems of protection for humans and non-human species
 - Consider ethics and values
 - Consider how principles of justification, optimisation etc apply to both humans and non-human species
 - Consider the principles used in chemical risk assessment/protection