

ICRP

Overview of ICRP C5 Protection of the Environment

IUR International Workshop

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Kathryn Higley
Vice-Chair, ICRP Committee 5

ICRP

INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

OVERVIEW of ICRP

- ICRP is an independent, international organization that advances for the public benefit the science of radiological protection, in particular by providing recommendations and guidance on all aspects of protection against ionizing radiation.
- ICRP is a Registered Charity (a not-for-profit organisation) in the United Kingdom, and has a Scientific Secretariat in Ottawa, Canada.
- ICRP is comprised of a Main Commission, a Scientific Secretariat, five standing Committees (on Effects, Doses, Medicine, Application, and the Environment), and a series of Task Groups and Working Parties.

ICRP Main Commission

Scientific Secretariat

Committee 1
Effects

Committee 2
Doses

Committee 3
Medicine

Committee 4
Application

Committee 5
Environment

Task Groups

Working Parties

ICRP Management

- Main Commission (MC) and Scientific Secretariat direct, organize, and oversee ICRP.
- Main Commission approves all reports for publication.
- Committees advise MC and direct Task Groups.
- Task Groups
 - Established to undertake a specific task, such as production of a single ICRP report.
 - Generally comprised of a mixture of Committee members and other experts in the field.
- Working Parties
 - Normally formed of Committee members to explore particular issues,
 - May become Task Groups if work is to result in an ICRP publication.

Committee 5 Membership

Carl-Magnus Larsson, Australia, Chair

Kathryn A. Higley, USA, Vice-Chair

Almudena Real, Spain, Secretary

David Coplestone, UK

Jacqueline Garnier-Laplace, France

Jianguo Li, China

Kazuo Sakai, Japan

Per Strand, Norway

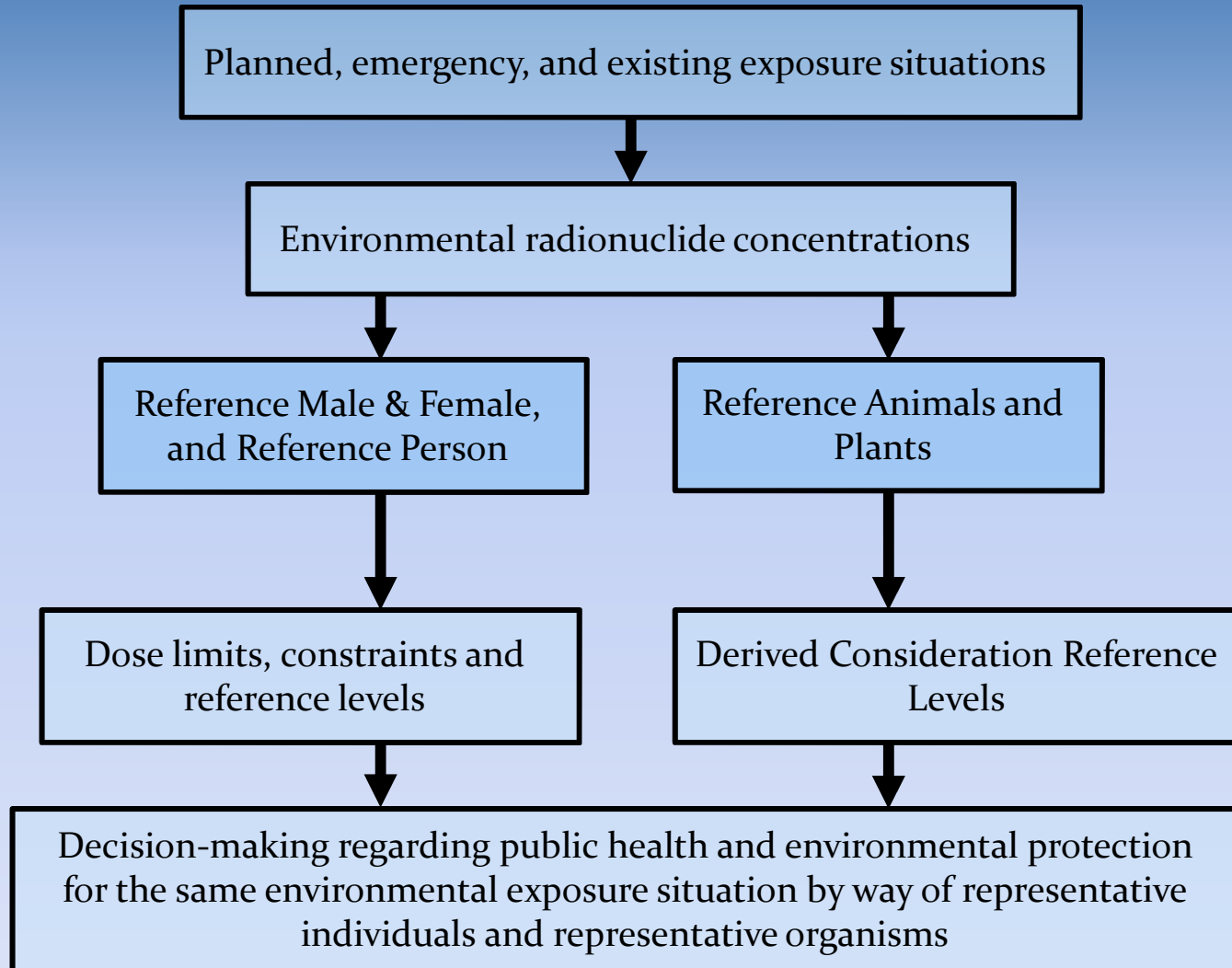
Alexander Ulanovsky, Germany

Jordi Vives I Batlle, Belgium

C5 Mission

“C5 is concerned with radiological protection of the environment. It will aim to ensure that the development and application of approaches to environmental protection are compatible with those for radiological protection of man, and with those for protection of the environment from other hazards”

Evolution of two parallel pathways



ICRP 91 (2003)

Review of ethics and principles, recommending that the System for Environmental Protection should

- *focus on biota;*
- *consider **adequate protection** on the basis of understanding of effects;*
- *identify reference animals and plants (RAPs); and*
- *let the RAPs guide the derivation of*
 - *exposure scenarios (CFs and DCFs)*
 - *effects data*
 - *dose rates benchmarks*

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(30)aim is...preventing and reducing the frequency of deleterious radiation effects to a level where they would have negligible impact on the maintenance of **biological diversity**, the **conservation of species**, or the health and status of **natural habitats, communities and ecosystems**.

(366)Reference Animals and Plants.....

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WILDLIFE GROUP	RAP
Large terrestrial mammals	Deer
Small terrestrial mammals	Rat
Aquatic birds	Duck
Amphibians	Frog
Freshwater pelagic fish	Trout
Marine fish	Flatfish
Terrestrial insects	Bee
Marine crustaceans	Crab
Terrestrial annelids	Earthworm
Large terrestrial plants	Pine tree
Small terrestrial plants	Wild grass
Seaweeds	Brown seaweed

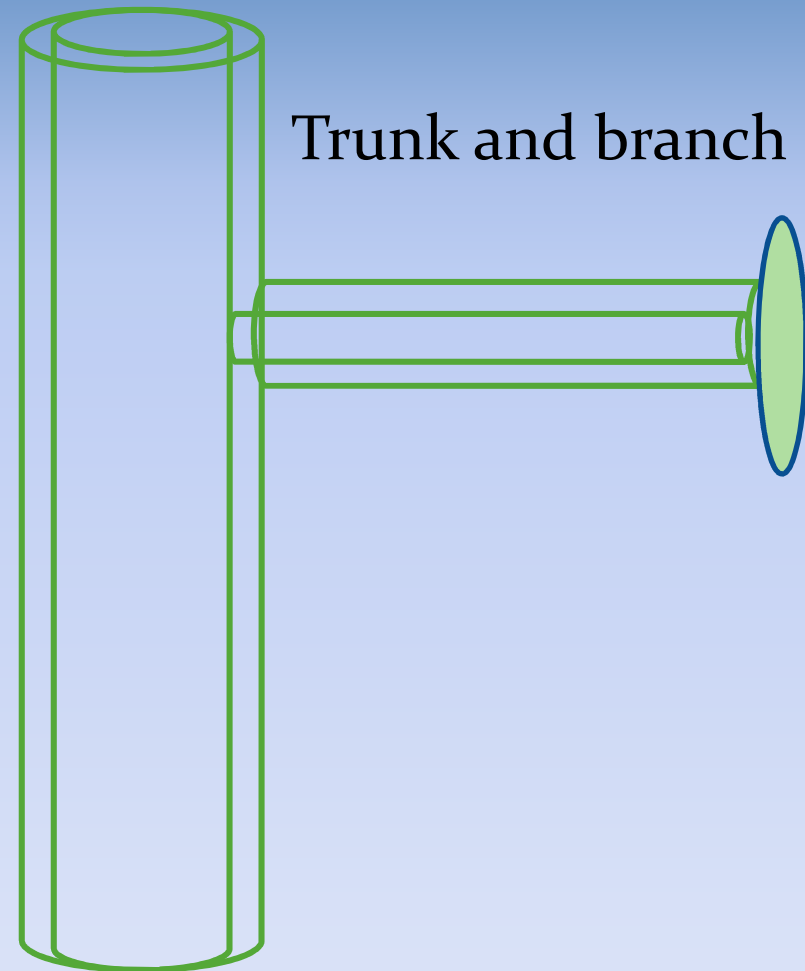
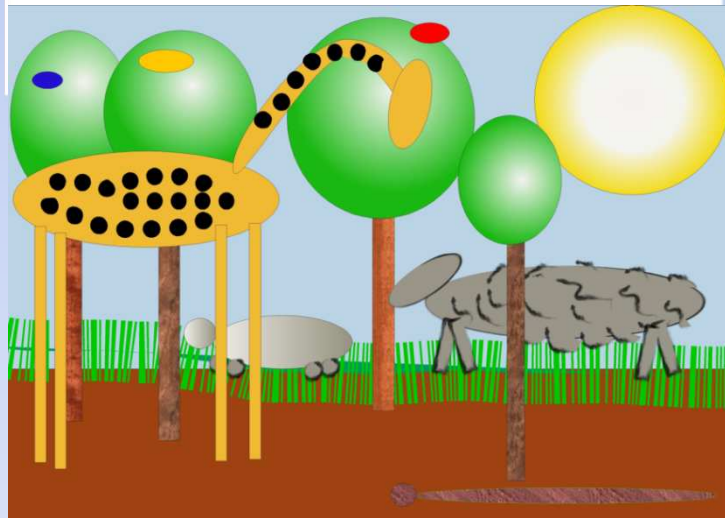
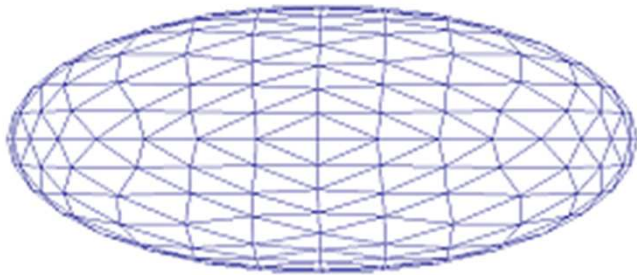
ICRP 108

ICRP 108 reviews biological characteristics

- *Occurrence*
- *Taxonomy*
- *Life cycle and life span*
- *Reproductive strategy*
- *Physiology*
- *Ecology*
- *.....other factors.....*

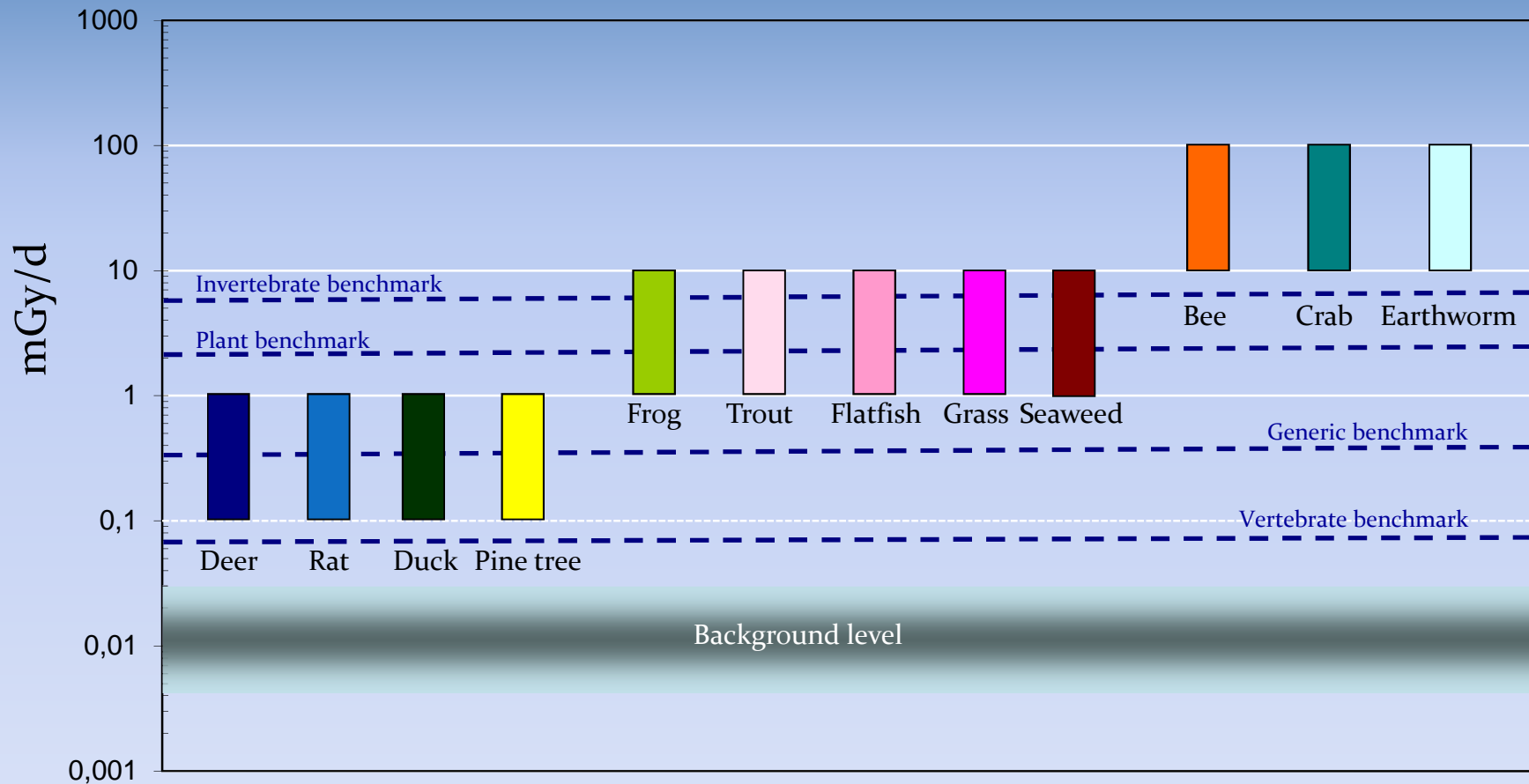
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DCCs for simple geometries



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Derived Consideration Reference Levels, DCRLs

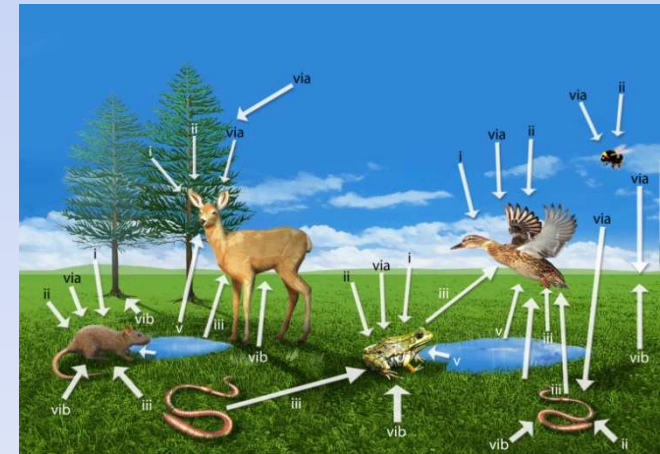


Benchmarks from other studies/systems

ICRP 114

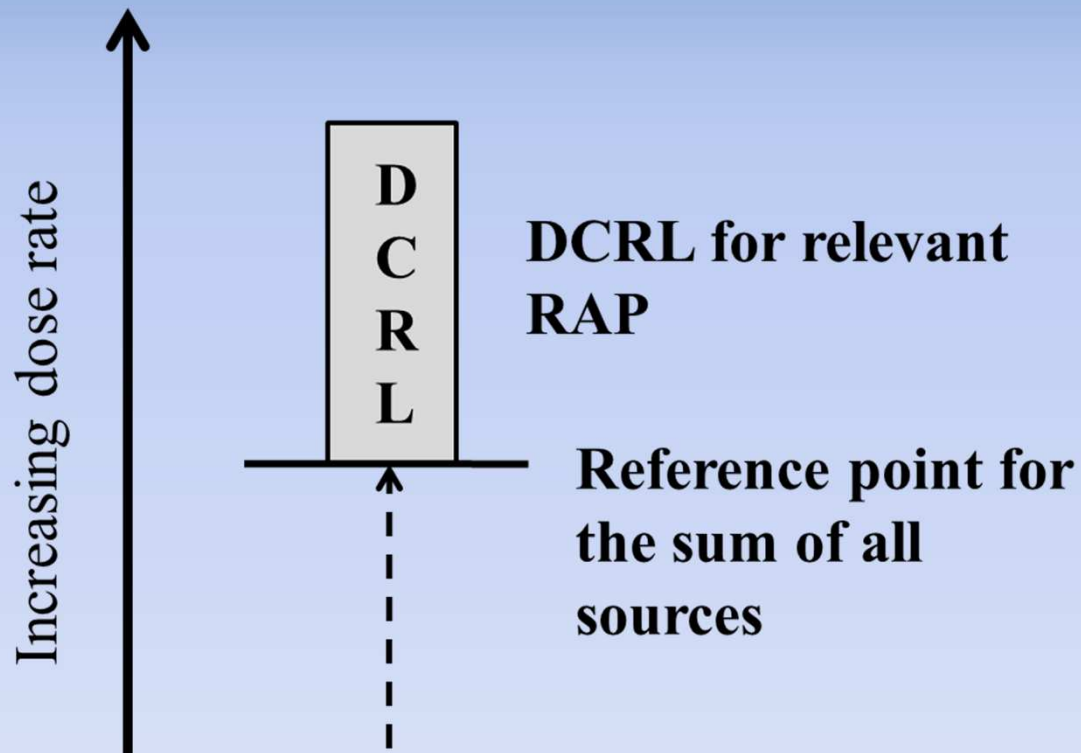
Concentration Ratios for 39 elements and 12 RAPs

- *with associated statistics;*
- *based on existing field and laboratory data;*
- *using new methodology to derive data ('surrogate data') where such are missing;*
- *taking in to account life cycle stages and habitats, when possible; and*
- *discussing the robustness of the data*



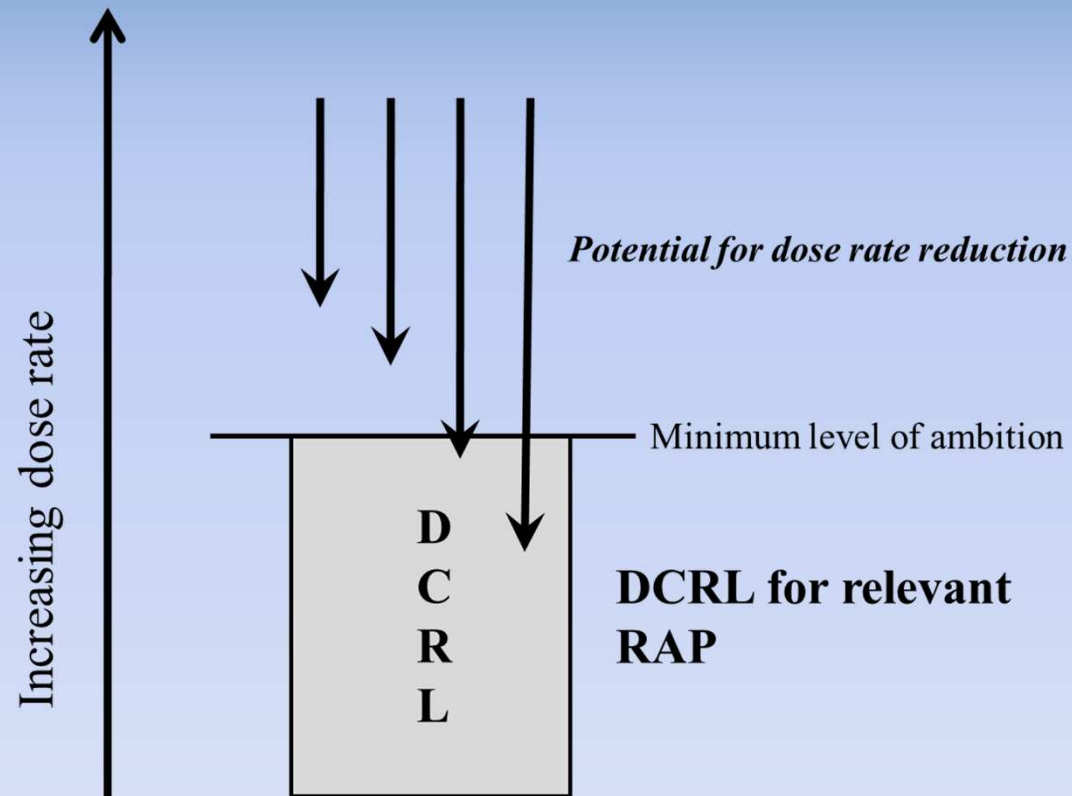
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Application in planned exposure situations



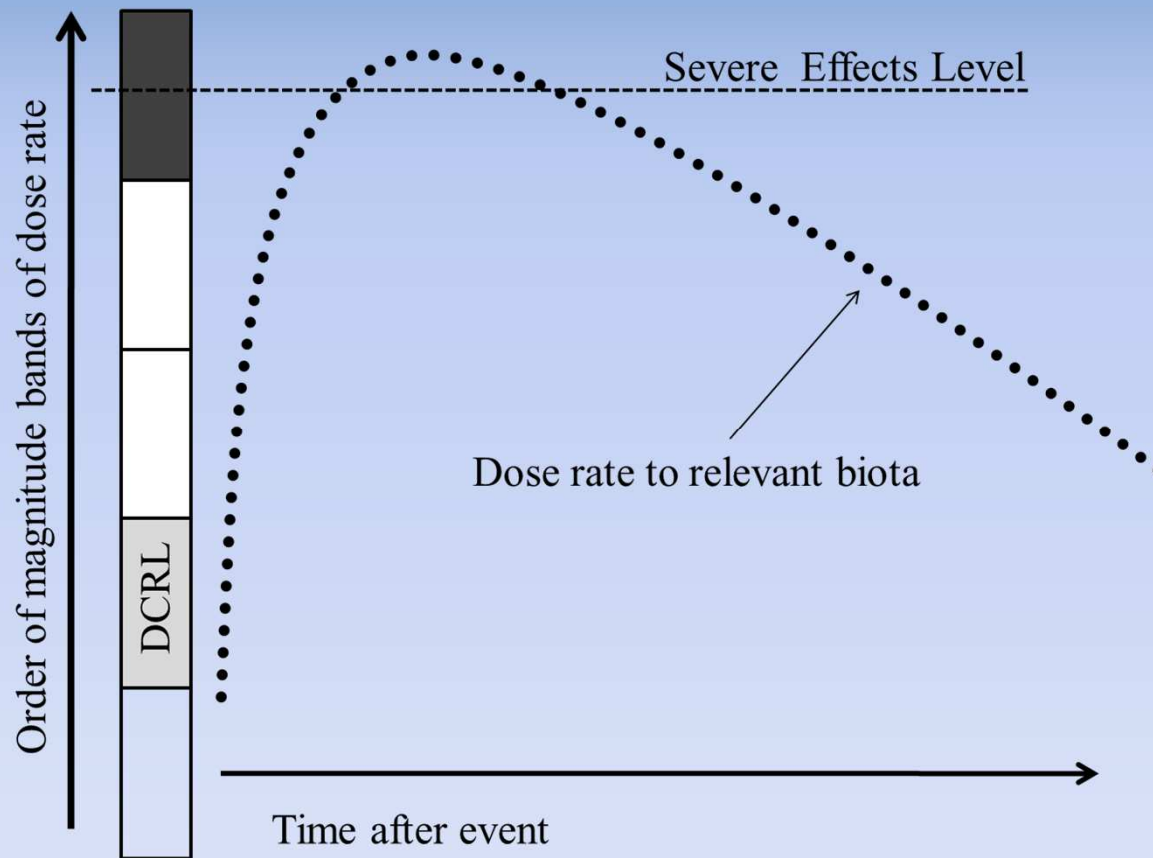
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Application in existing exposure situations

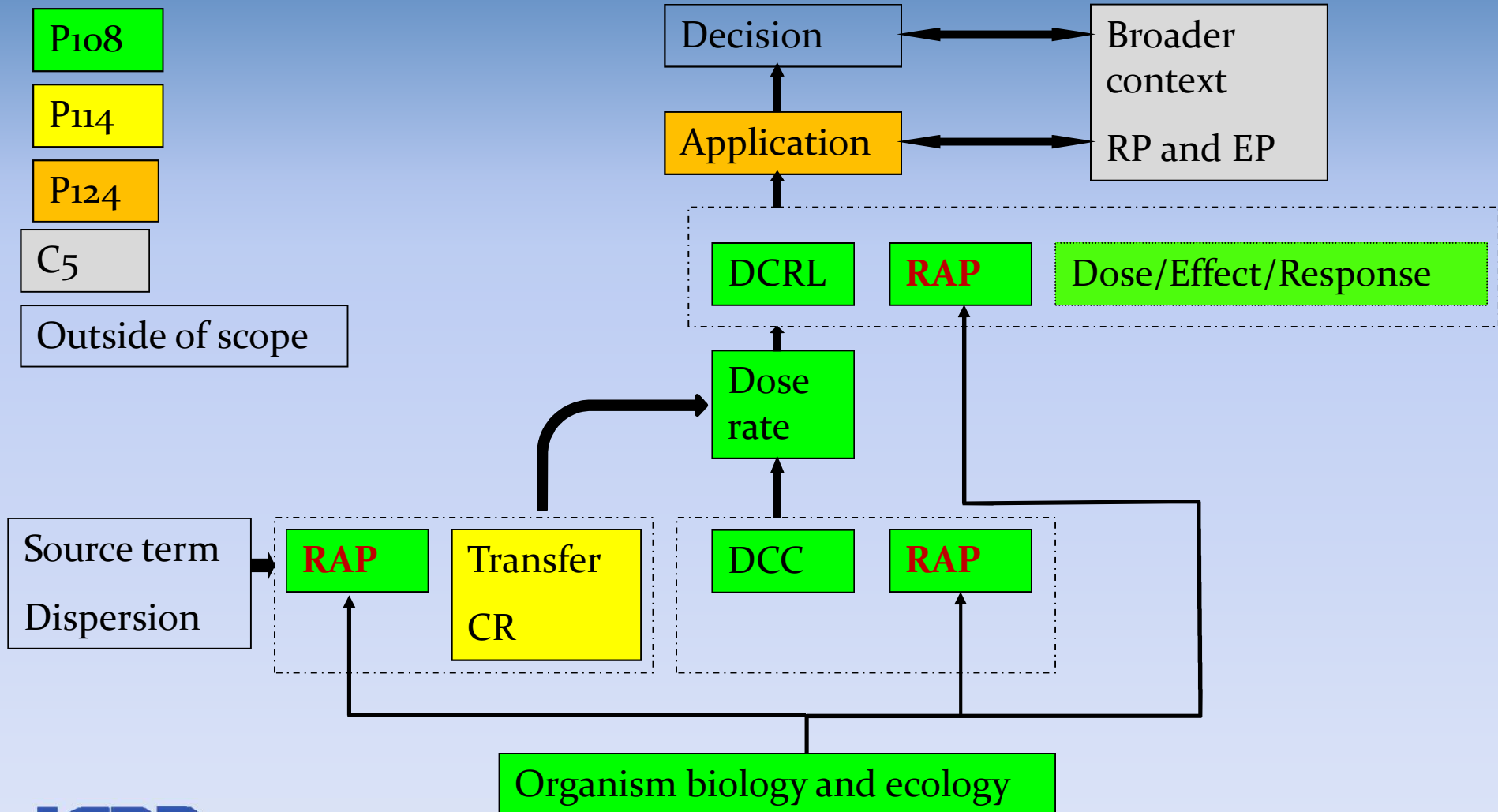


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Application in emergency exposure situations



ICRP EP/RP System



Conclusions

- A robust system has evolved that is compatible with the RP system for man and the EP system developed for other hazards
- Considering the environment in its own right is appropriate and facilitates communication
- Simple to apply using default RAPs databases – but can also cope with complex exposure situations
- Priority during this term to
 - Consolidation
 - Broadening the scientific basis
 - Improving applicability

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