Current Legislative Requirements for Radiation Protection of the Environment

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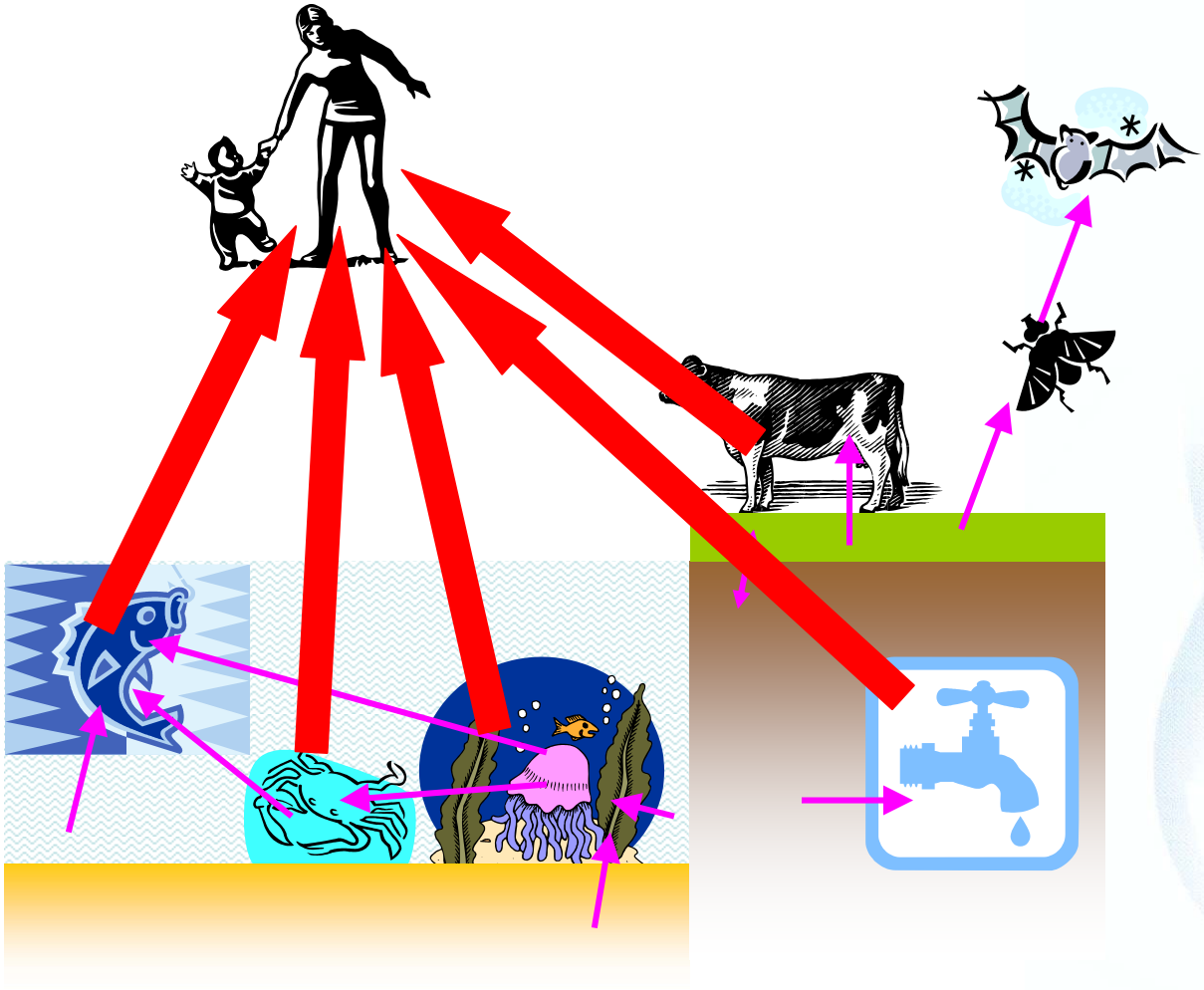
Introduction

- Looking at regulatory requirements for protection of the environment from the effects of ionising radiation
- Currently, radiation protection assumes that protecting most exposed humans (off-site) also protects the environment
- More emphasis on environmental protection generally
  ⇒*fairly happy current system works in practice*
  BUT *perceived conceptual gap*
- Radiation protection generally follows the recommendations of the International Commission on Radiation Protection (ICRP)

Background

- ICRP drafting recommendations on direct protection of the environment
- Implication: *require national changes?*
- What is already being done in NEA countries to protect the environment? How much direct protection is there?
  $\Rightarrow$ *study legislation in selected NEA countries plus EC and international*
- Looking at: Australia (non-nuclear), Canada, France, Japan, United Kingdom, United States (EC+international)
- Limited to nuclear installations – emphasis on operation, not accidents or waste management

How the environment is protected



Fails if:

- Weak interaction
- Accumulates
- Sensitive

Current study

- Started with legislation, policy later as required
- Covered national environmental and radiation protection legislation, EC Directives, international instruments
- Examined ~100 instruments, NEA Analytical Study
- Emphasis on identifying
  -what is protected
  -how it is protected
  -the level of protection
  -the rationale

National legislation

- Emphasis on protection of humans (ICRP recommendations)
- Generally separation of radioactive substances from other hazardous substances. May have overarching policy requirements e.g. US
- Most regulation is based on sites/installations
- Protection is generally qualified e.g. economic factors
- Often a requirement for best available technology or similar
- Criteria for harm/damage not well-defined
- Aims vary e.g. flora & fauna, ecosystem, sustainable development
- Usually room for discretion
- Environmental Impact Assessments/Statements required (information)
- Environmentally sensitive areas generally have special protection
- Several countries refer to precautionary principle, usually overarching

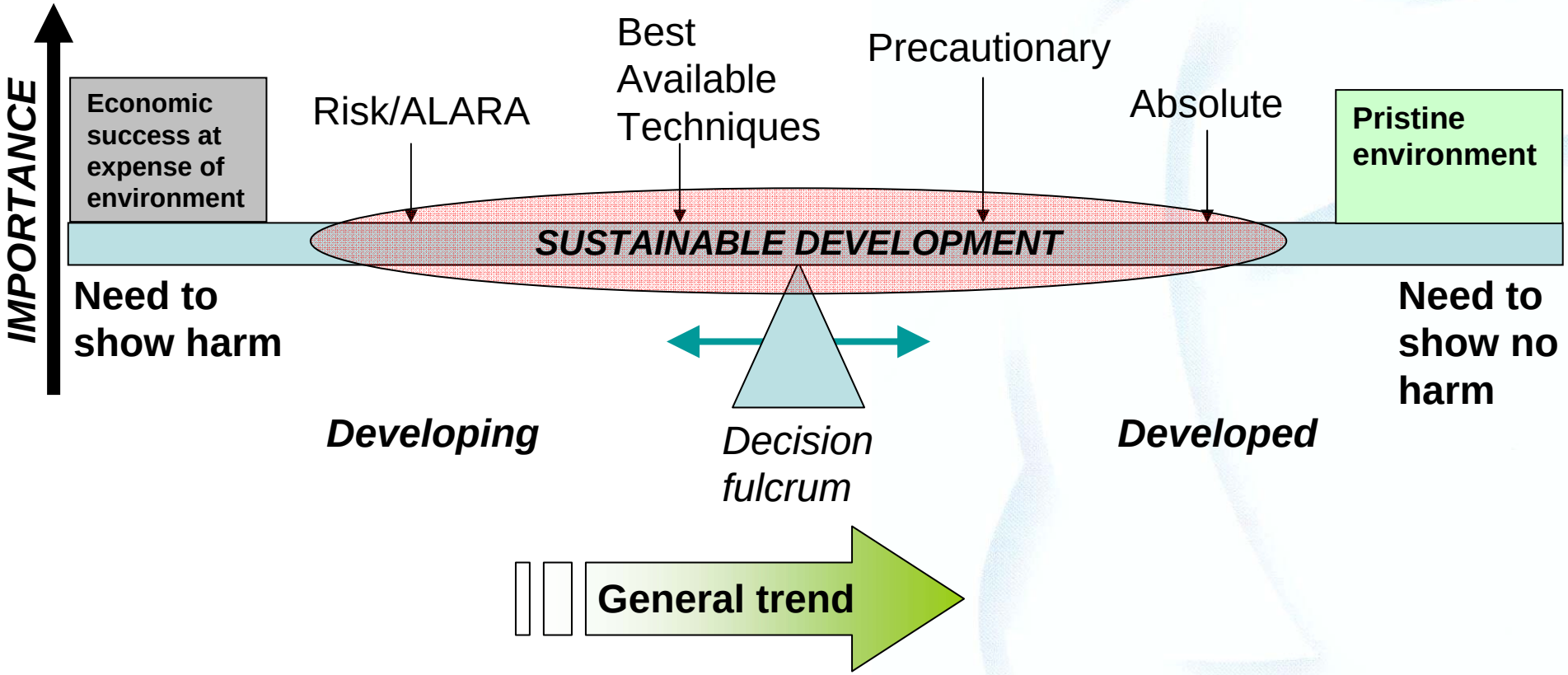
European Commission

- Euratom Treaty does not mention the environment or its protection (though could cover research)
- Protection of the environment referred to in BSS
- Environmental impact assessment legislation
- Access to information, participation and justice (Aarhus Convention)
- Media based Directives: Water, Soil
- Protection of sensitive habitats, areas, species
  ⇒Habitats Directive, Wild Birds Directive
- Committed to precautionary principle
- Radioactive substances largely separate but convergence

International instruments

- Many instruments, some binding, some not binding
  $\Rightarrow$ non-binding indicate 'customary law' and trends
- Sustainable development: anthropocentric
- Clear principle of restricting harm to within national jurisdiction
- Generally require information sharing
- Generally fall back to environmental harm/damage
  $\Rightarrow$ not well defined
- Precautionary principle prominent (often not in binding documents)
- Link to human rights, implicit and explicit
- Some instruments specifically for radioactive substances but often the same (policy and implementation may be separate)

Key trend: the decision fulcrum



- Commitments to information, participation and access to justice
- Trend may stop or reverse if globalisation/energy supply bites

Key legalistic problems for implementation

- How to define environmental harm
  -aim to protect at individual level? (animal rights?)
  -protect population?
  -protect species?
  -protect habitat?
  OR via harm to humans (broaden 'harm', human rights?)
- How to measure level of harm e.g. settle liability
- What weight to put on the environment
- Proportionality?
- Some national and international laws covering radiation protection do not mention environmental protection

Radiation Protection Regulatory Problems

- What is harm?
  AND
- What are we trying to protect?
  E.g. individual biota (animal, plant rights?), population, species

- What evaluation tools do we have?
  E.g. dose models, critical level of cohort/population loss?

- How should environmental harm be regulated?
  E.g. dose limits, concentration limits, ALARA

- Knowing this, what are the gaps that need to be filled?

Regulatory tools

Currently, most/all countries have:

- Dose limits for humans (absolute) and dose constraints
- Requirement to reduce discharges (discharge authorisations, ALARA, BAT)
- Limits on concentrations in media (absolute) (not widespread but legal provisions in place?)
- Protection of sensitive areas (particularly strict)

First 3 of these generally set with human health and safety in mind

$\Rightarrow$ adapt to protect environment?

Summary and Conclusions

- Increasing trend to protect the environment
- Radiation protection has (at least) a conceptual gap
  '*environmental protection must not just be done, but be seen to be done*'
- ICRP proposing to plug this gap
- Need know what harm to limit/how to weight it
- Possibility some countries will probably need to adjust laws?
- Exact nature of ICRP recommendations will affect who/how much adjustment may be needed

- *Your help gratefully received in national/international analysis*
- *PROPOSAL: examine possible effective paths forwards*