

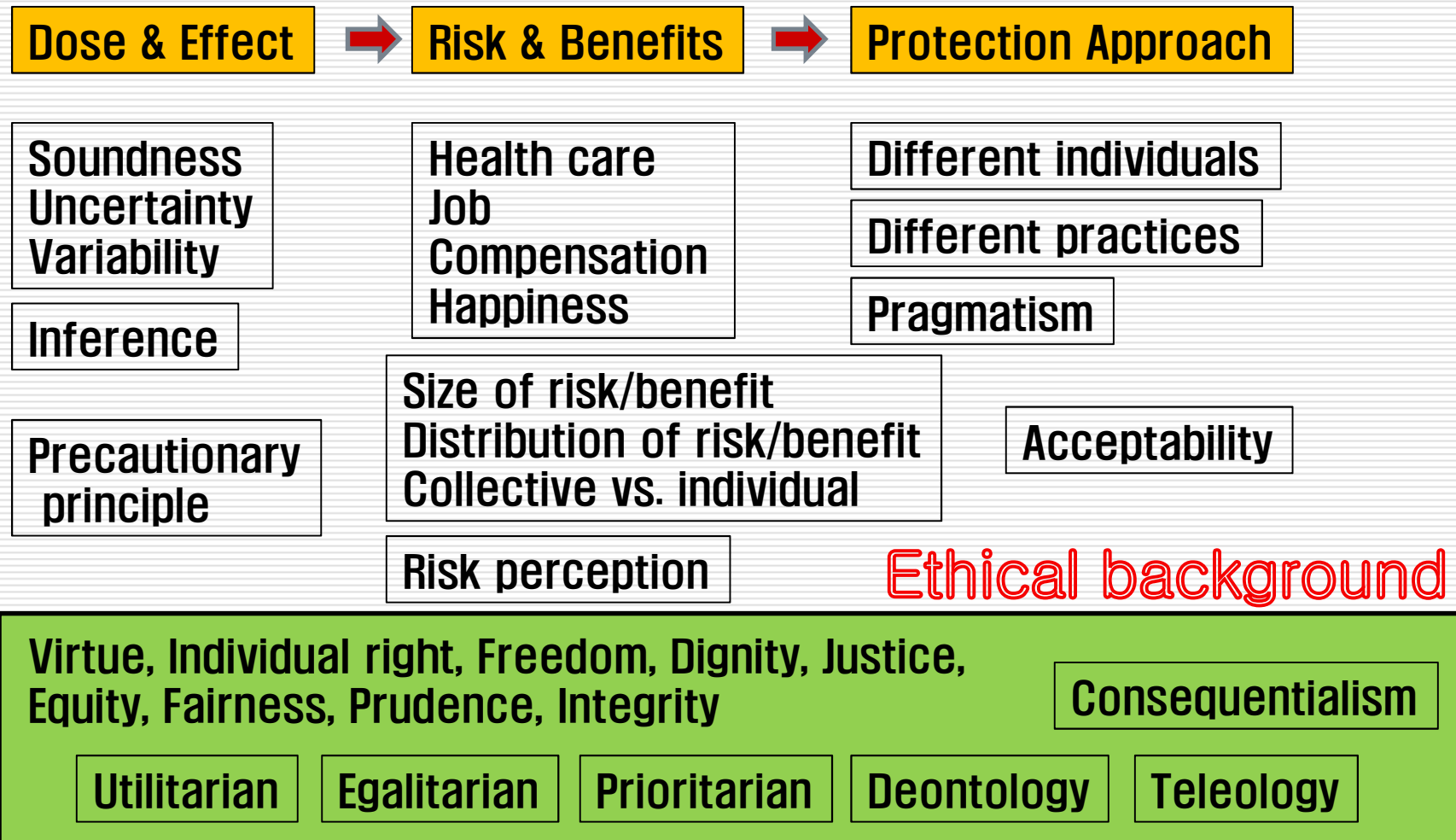
Ethical Consideration in Radiological Protection

2013.8

Jaiki Lee

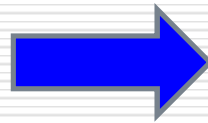
Hanyang University

Elements of Ethical Consideration



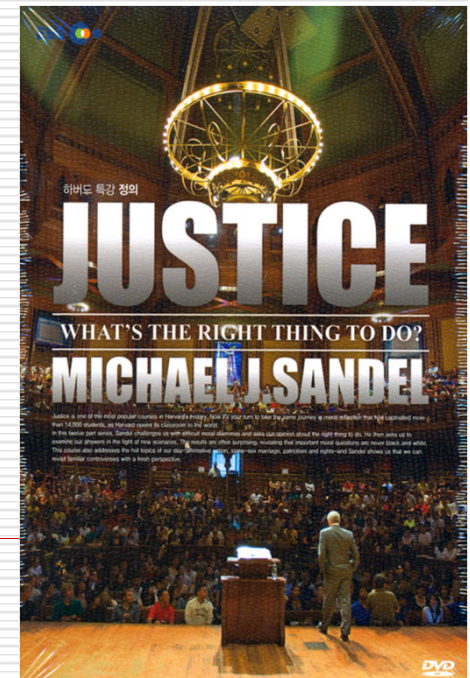
Stream of Thought

Utilitarian
Collective value

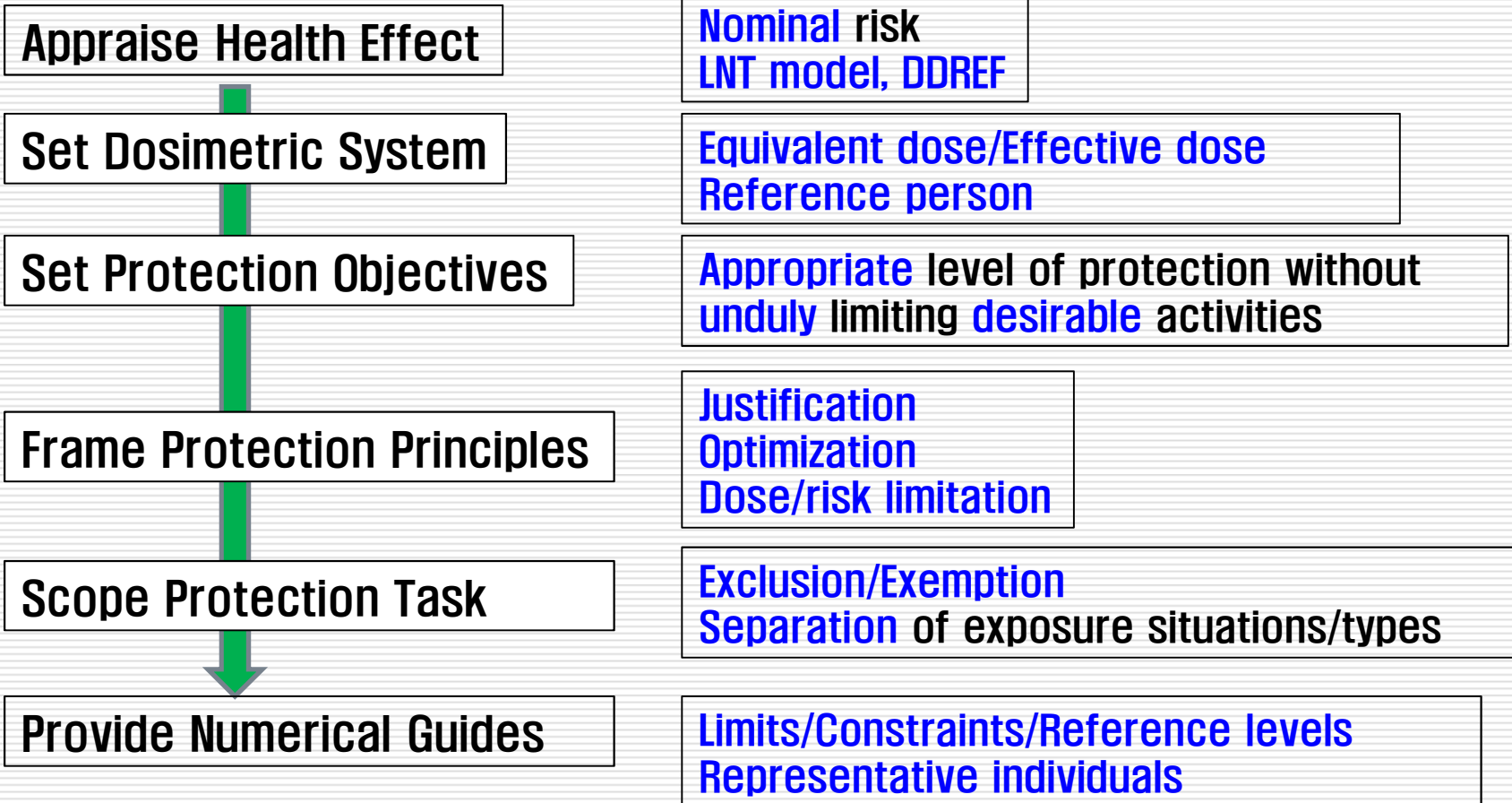


Justice
Individual Right

- ❑ *Trivial risk* is not necessary
Acceptable risk, and vice versa
- ❑ Acceptability may differ after
who imposes the risk
- ❑ Stakeholders' voice in
judgment



Protection System Elements involving Judgment



What should be considered in line with contemporary ethical thought ?

What in the system of RP can be ethically challenged?

Issues first, Answers later

Health Effects

- ☐ Sufficient knowledge?
 - ☐ LNT model
 - Prudent enough?
 - ☐ **Nominal** risk approach: sound?
 - Genetic susceptibility
 - Smoker/non-smoker(Rn risk)
 - Conceptus/children
 - ☐ DDREF: Still needed?
-

Dosimetry

- ☐ **Macrodosimetry(mean absorbed dose)**
 - ☐ **Radiation weighting factors**
 - w_R of low energy beta: sound?
 - ☐ **Tissue weighting factors**
 - ☐ **Reference person: higher percentile?**
 - Physiology
 - Nutrition data
 - ☐ **Operational quantities: conservative?**
-

Objective of Protection

- ❑ The proviso ‘without unduly limiting desirable activities’ is needed?
 - ❑ What is ‘appropriate’ ?
 - Do we need a quantitative risk objective?
 - ❑ Commission vs. Omission
 - Is moral reprehensibility different?
-

Principles

☐ Justification

- Who does justify?
- On what ground?

☐ Optimization

- Optimize what? How?
- Indirect cost? E.g. ethical cost

☐ Dose/Risk Limitation

- Who decide 'acceptable' ?
 - Size of acceptable risk?
-

Scope & Approach

☐ Exclusion

- Natural vs. Artificial ?

☐ Exemption

- Utilitarian approach?

☐ Different approach is reasonable?

- Natural vs. Artificial
 - Creating exposure (practice) vs. Reducing exposure (intervention)
-

Separate Approach

- ☐ Exposure situations
 - Prudent enough?
 - ☐ Exposure types
 - ☐ Exposed persons
 - How well respect right of individuals?
 - Informed consent
 - ☐ Full free consent?
 - ☐ Consent from **members of the public?**
-

Numerical Guidance

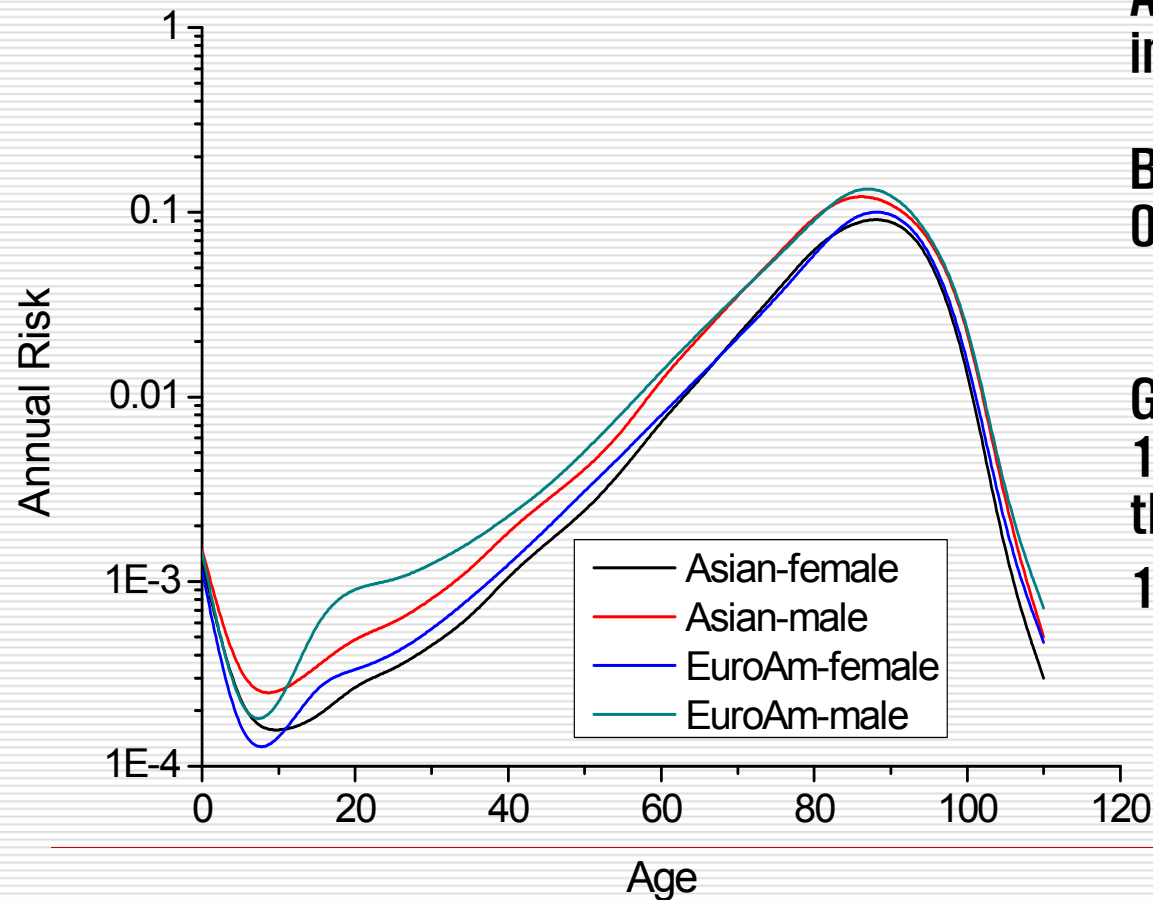
- ☐ What is a special (emergency) exposure?
 - ☐ Consensus on the limits?
 - ☐ Adequate protection of **minors**?
 - ☐ What is the activity criteria for **foodstuffs**?
-

Others

- ☐ Any other areas involving ethical decision?
 - ☐ Lessons learned from Fukushima?
 - ☐ Opportunity of individual control over risk?
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On Acceptable Risk

Acceptable risk

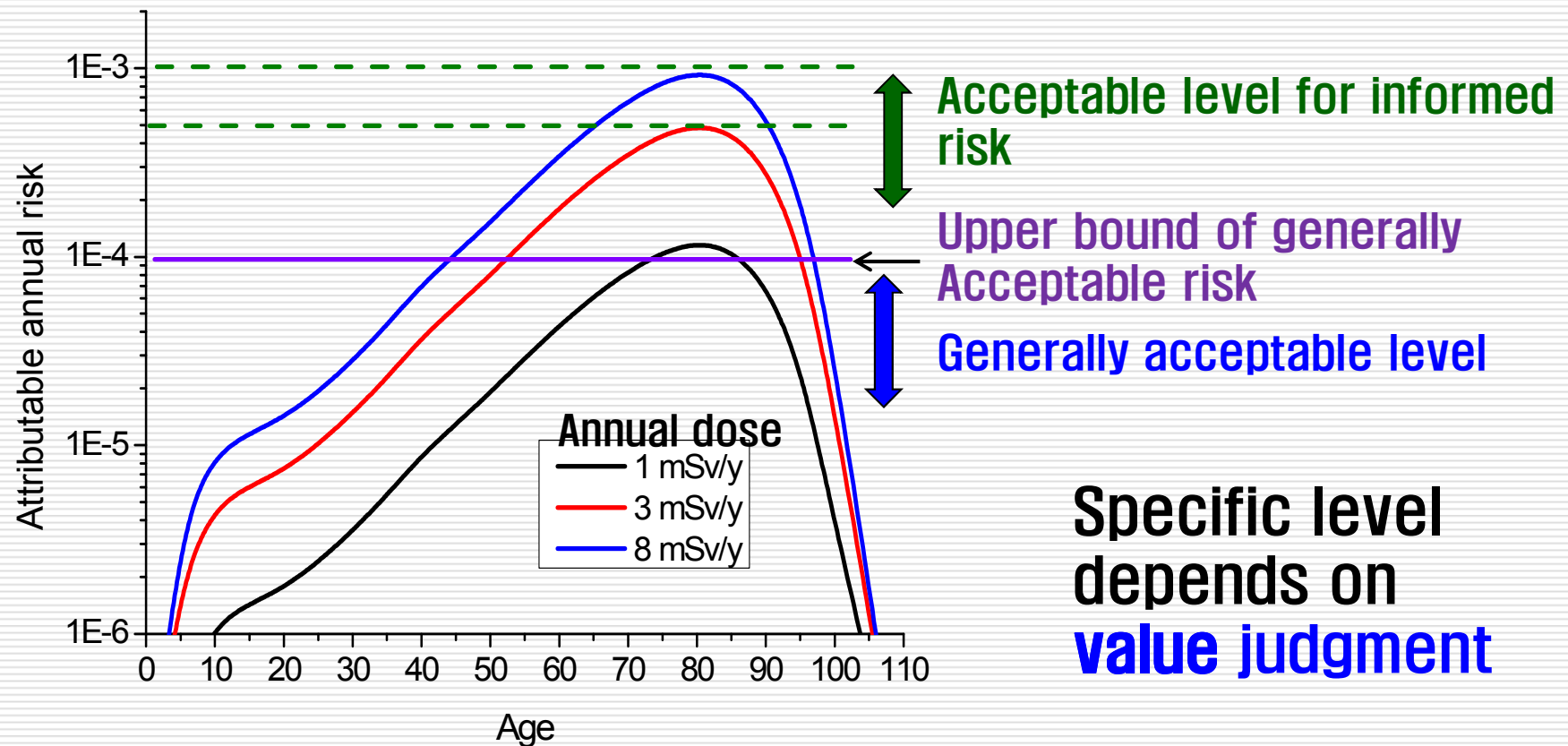


Acceptable risk
in literature: $10^{-6} \sim 10^{-4}/y$

Base risk: $10^{-4} \sim 10^{-1}/y$
0.1% of base risk:
 $10^{-7} \sim 10^{-4}/y$

Given that a risk less than
 $10^{-6}/y$ is trivial,
the acceptable risk is in
 $10^{-6} \sim 10^{-4}/y$

Acceptable risk vs. Attributable risk



Adjusted ICRP 60 risk projection, female

Informed Consent

☐ Conditions of free IC

- Disclosure
- Understanding
- Voluntariness
- Competence

☐ IC of Public

- Neither practical nor possible
 - Implied IC can be considered? Or what?
-

Thanks

