

Environment Protection Authority South Australia

The relationship between sustainability and radiation safety is the most important issue we face

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The South Australian Environment Protection Authority is an independent government environment protection and radiation regulator.

Keith has been with the EPA since 2004, holding a variety of executive positions including environmental science, energy transformation, mining, radiation, and ICT.

Prior to joining the EPA, Keith worked on site remediation and nuclear decommissioning projects in the UK and Australia.

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Acknowledgment

I am joining you from Kaurna land, the plains of the Adelaide region.

I would like to acknowledge and pay respect to the traditional owners and custodians of the lands where I live and work.

Our circumstances are different but all of us are on lands that have history and people that came before us.



My perspective

- A perspective of 19 years in radiation and environmental regulation
- Not a presentation of researched material, rather it is my view of aspects of safety and sustainability that the conference might address
- Maturity of regulatory systems and relevance of UN Sustainable Development Objectives vary across the world

Why this conference is so important

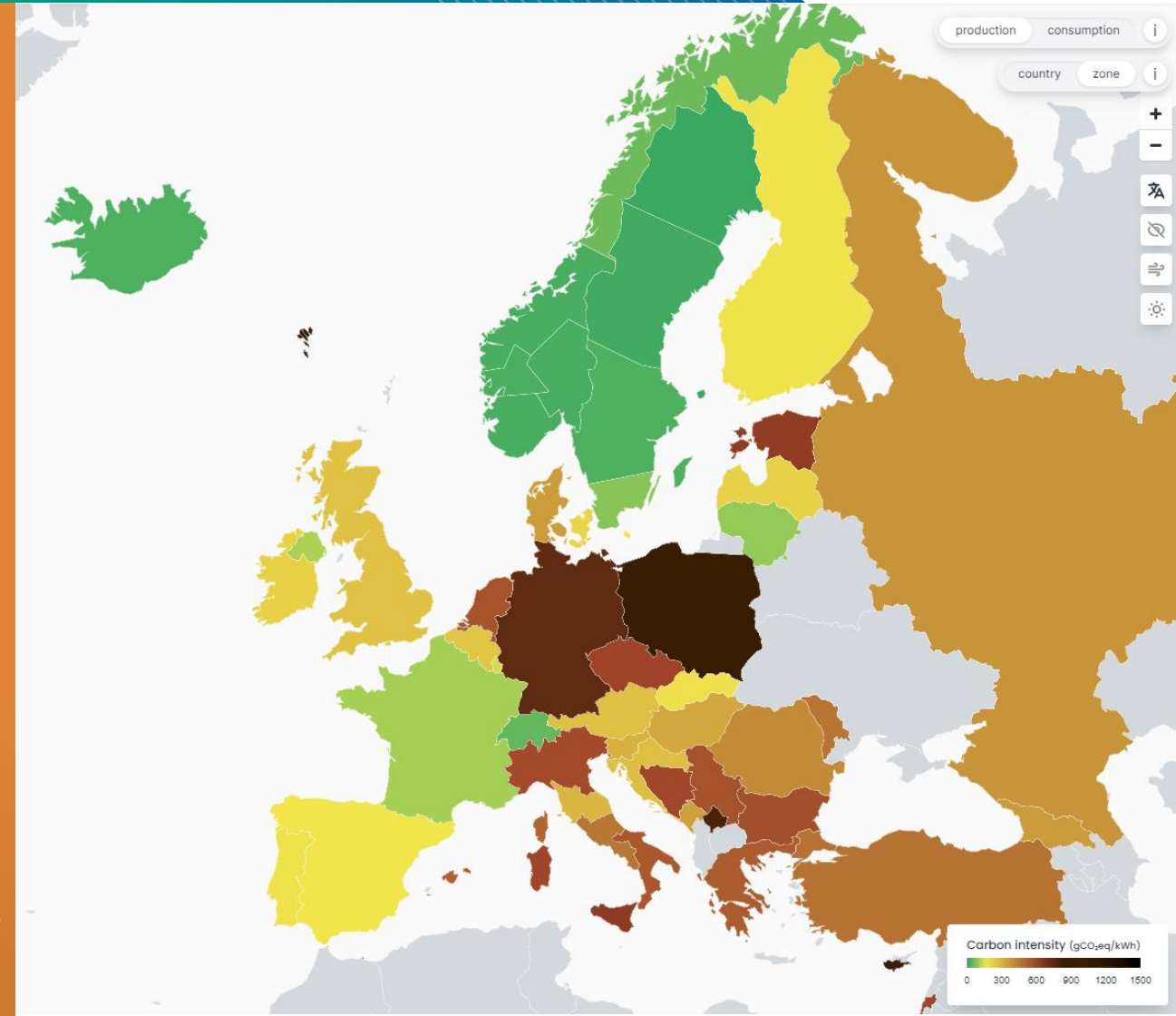
Climate change is expected to cause an estimated **250.000 additional deaths** every year 2030-2050.

The direct health costs are estimated to be **\$2-4 billion** each year by 2030. This excludes costs in health-determining sectors such as agriculture and water and sanitation

WHO 2021

Over the past 50 years, the use of nuclear power has reduced CO2 emissions by 60 gigatonnes, or **4% of global energy-related emissions.**

NEA



Why this conference is so important

Scaling up medical imaging would avert 3.2% of all cancer deaths between 2020-2030, saving **55 million life years**.

The cost of \$6.8 billion would yield a net return of **\$1.2 trillion** (\$179 for each \$1), from lifetime productivity gains

Lancet Oncology Commission on Medical Imaging and Nuclear Medicine
2021-04-01, Volume 22, Issue 4, e136-e172

The case for action

My observation of radiation safety in practice

- Compliance with radiation safety standards is regarded as the primary and sometimes only outcome
- Responsibilities for safety and sustainability outcomes are often seen as belonging to different parties. Safety is regulator, sustainability is the operator
- Sustainable development objectives can be alien to or ignored in regulatory policy and compliance thinking. To become part of the regulatory approach significant culture change is required
- The peak international documents do not help

How safety can contribute to sustainability

Public trust

Can address intergenerational equity

Safety reduces harm, which is a wellbeing outcome

Driving innovation

Employee engagement

Culture of compliance

How safety can compromise sustainability

Impact on activity

Impact on sustainability

Delay or prevent activities

Goal 3 Health and wellbeing or **Goal 7** Clean energy

Increase business costs /
decrease viability

Goal 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Reduce efficiency

Goal 12 Sustainable production

Stifle innovation

Limit development of approaches and technologies aimed at sustainability outcomes

Lifecycle relationship



Factors in integrating safety and sustainability

Clear government and regulator **objectives** and **leadership**

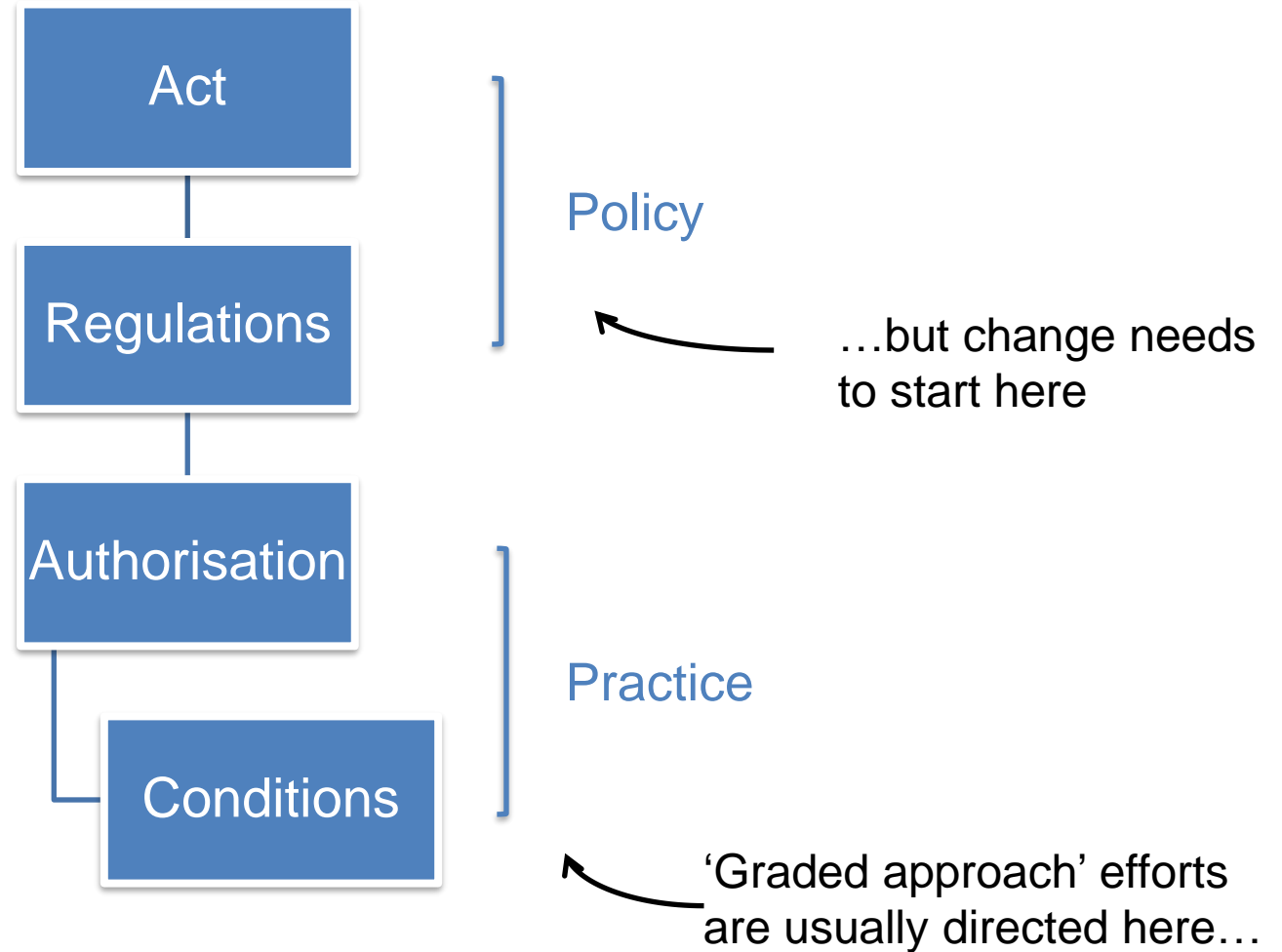
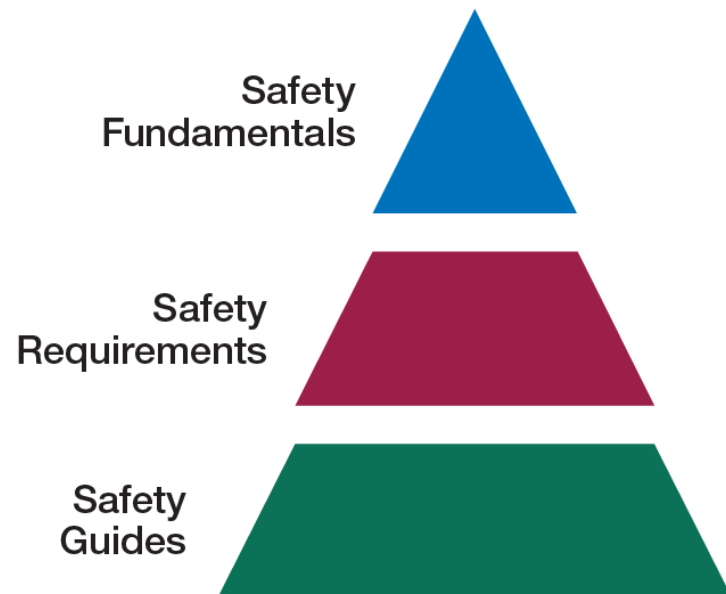
Understand **sustainable development** in context – needs of the present and ability of future generations meet their own needs. **Life-cycle analysis** to ensure that decisions are made with a comprehensive understanding of their impact

Stakeholder engagement including communities is essential to understanding social and economic impacts and needs. Don't have safety and sustainability decisions made in different places by people who don't understand the connections

Collaborate, sustainable development needs involvement from **multiple government agencies**, and industry and community support

Adaptive management – safety and sustainability are not static, technology and society's needs change, and complex issues need adaptive approaches

Leadership role of top policy documents



Development of South Australian legislation

Radiation Protection and Control Act 1982

23—General objective

(1) The Minister and the Committee must, in exercising and discharging powers, functions and duties under this Act and any other person must, in carrying on an activity related to radioactive substances or ionising radiation apparatus, endeavour to ensure that exposure of persons to ionising radiation is kept as low as reasonably achievable, social and economic factors being taken into account.



Radiation Protection and Control Act 2021

5—Objects of Act

The objects of this Act are—

- (a) to protect people and the environment from the harmful effects of radiation by applying the radiation protection principle; and
- (b) to ensure that radiation sources are secured against misuse that may result in harm to people or the environment; and
- (c) to recognise the benefits of the safe and justified uses of radiation; and
- (d) to promote the principles of ecologically sustainable development.

ICRP and IAEA fundamentals, an opportunity?

(26) The primary aim of the Commission's Recommendations is to contribute to an appropriate level of protection for people and the environment against the detrimental effects of radiation exposure without unduly limiting the desirable human actions that may be associated with such exposure.

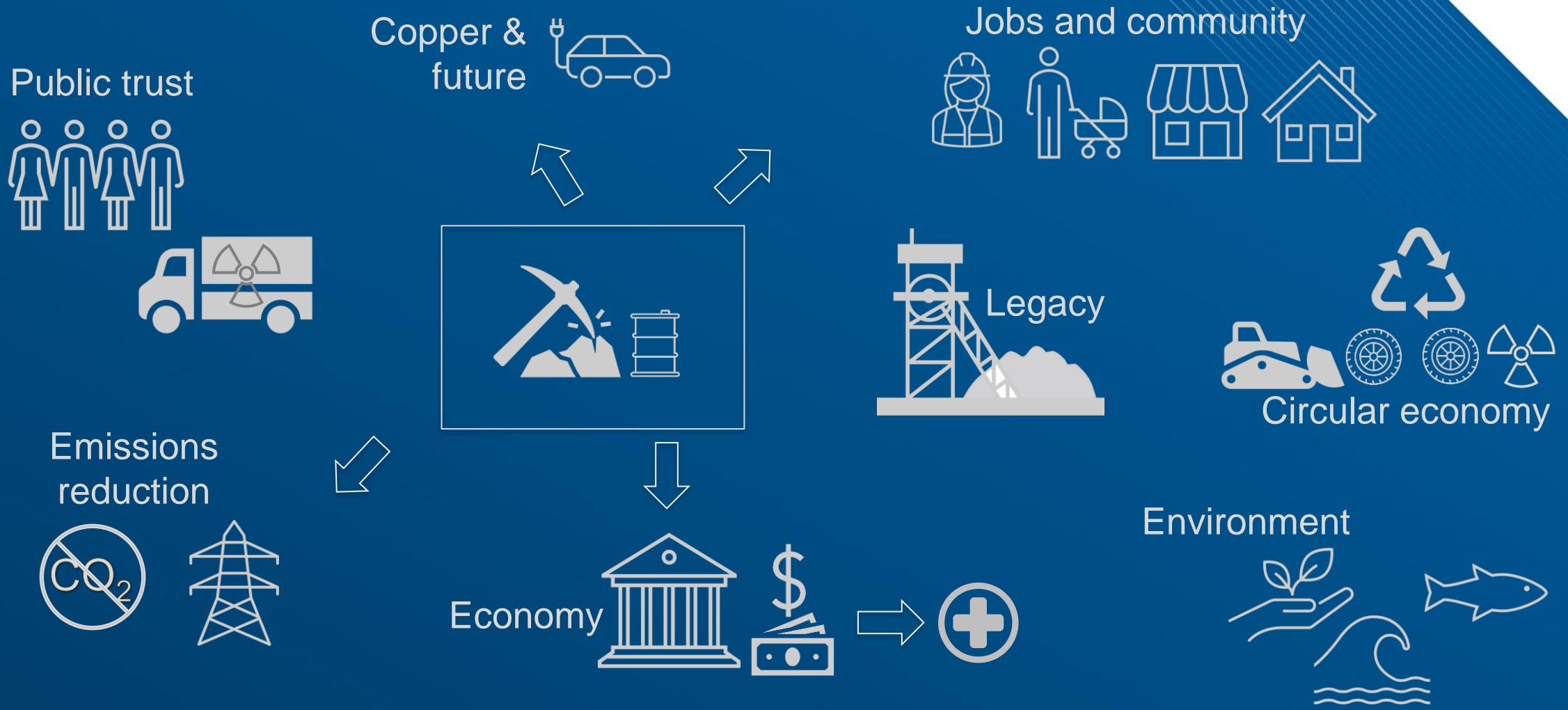
(29) The Commission's system of radiological protection aims primarily to protect human health. Its health objectives are relatively straightforward: to manage and control exposures to ionising radiation so that deterministic effects are prevented, and the risks of stochastic effects are reduced to the extent reasonably achievable.

(44) The Commission's system of radiological protection applies to all radiation exposures from any source, regardless of its size and origin.

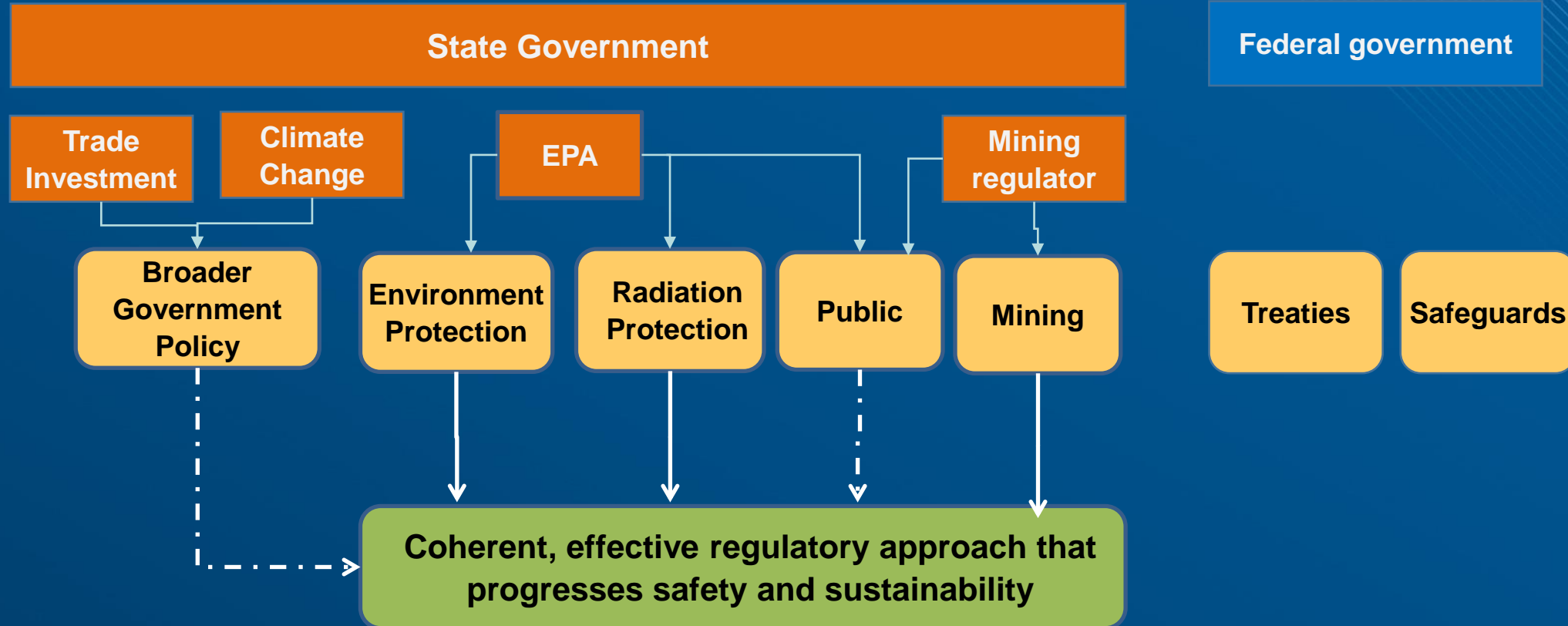
The fundamental safety objective is to protect people and the environment from harmful effects of ionizing radiation.

2.1. This fundamental safety objective of protecting people — individually and collectively — and the environment has to be achieved without unduly limiting the operation of facilities or the conduct of activities that give rise to radiation risks.

Example: uranium production lifecycle analysis



Cross government decision making



Conclusion



Hypothesis:

Sustainable development outcomes are our most significant opportunity to improve the world

The scale of impact of our decisions (good or bad) makes an urgent case for action

Safety can support sustainable development but does not drive sustainable development

Radiation safety and sustainability decisions are often made by different people, in isolation

Sustainable development cannot be achieved by the radiation regulator, it needs whole of government commitment and leadership at the highest levels

We need to build a shared language to discuss and this conference is an excellent opportunity

Conclusion

What might be interesting for the conference to explore:

If leadership is needed, what does it look like?

The importance of building sustainability into the ICRP and IAEA safety fundamentals

The definitions of safety and sustainability, how can UN ESGs be used for a common language

What are the metrics for radiation safety's contribution to sustainable development?

What are the metrics and standards needed to deliver the programs? Does this PM impact out considerations.

Are there sustainability leadership role models, and where are they?

Thank you

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