Forward-looking insights into environmental radiological protection

Presented by

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ICRP Committee 4

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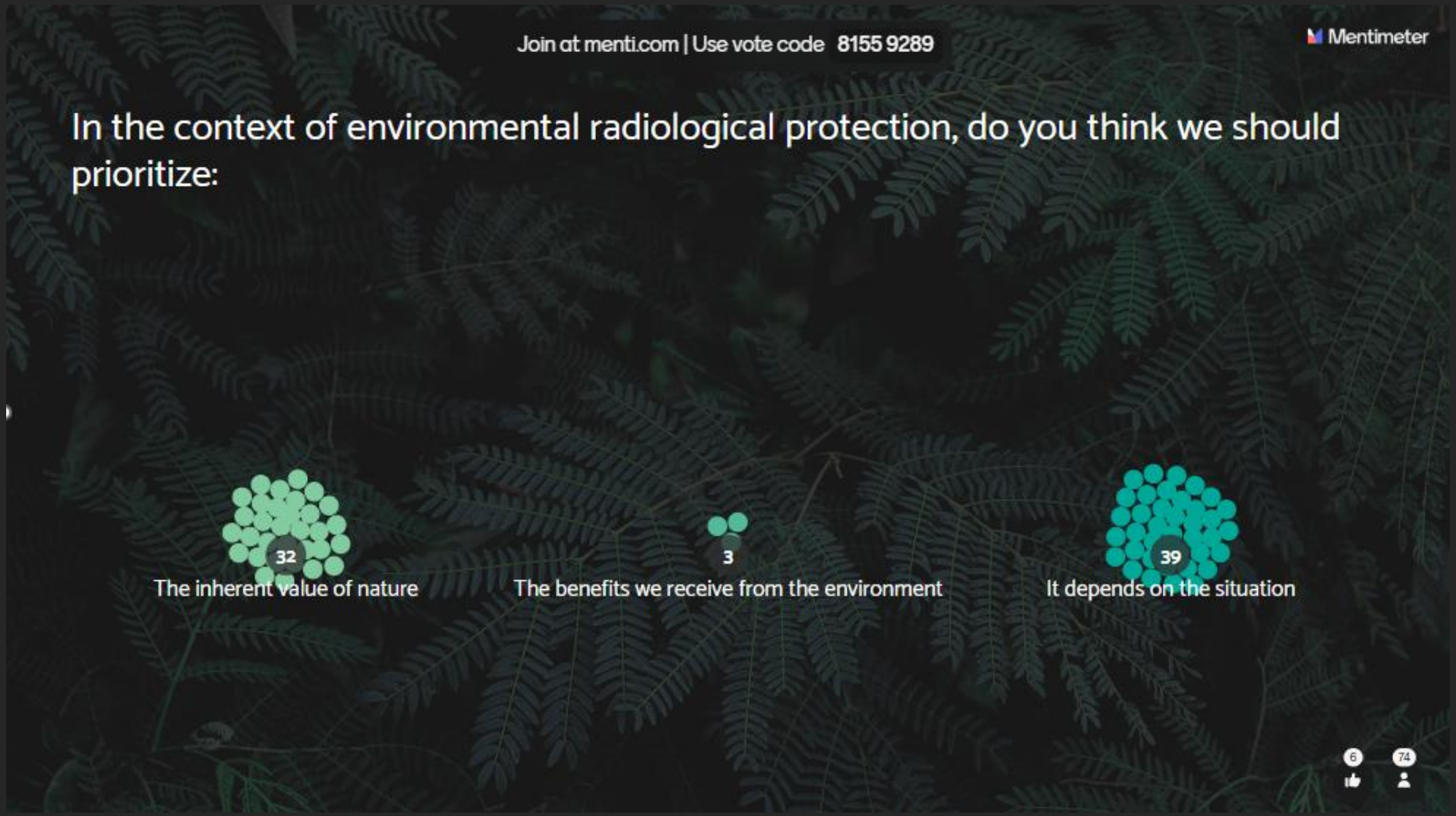
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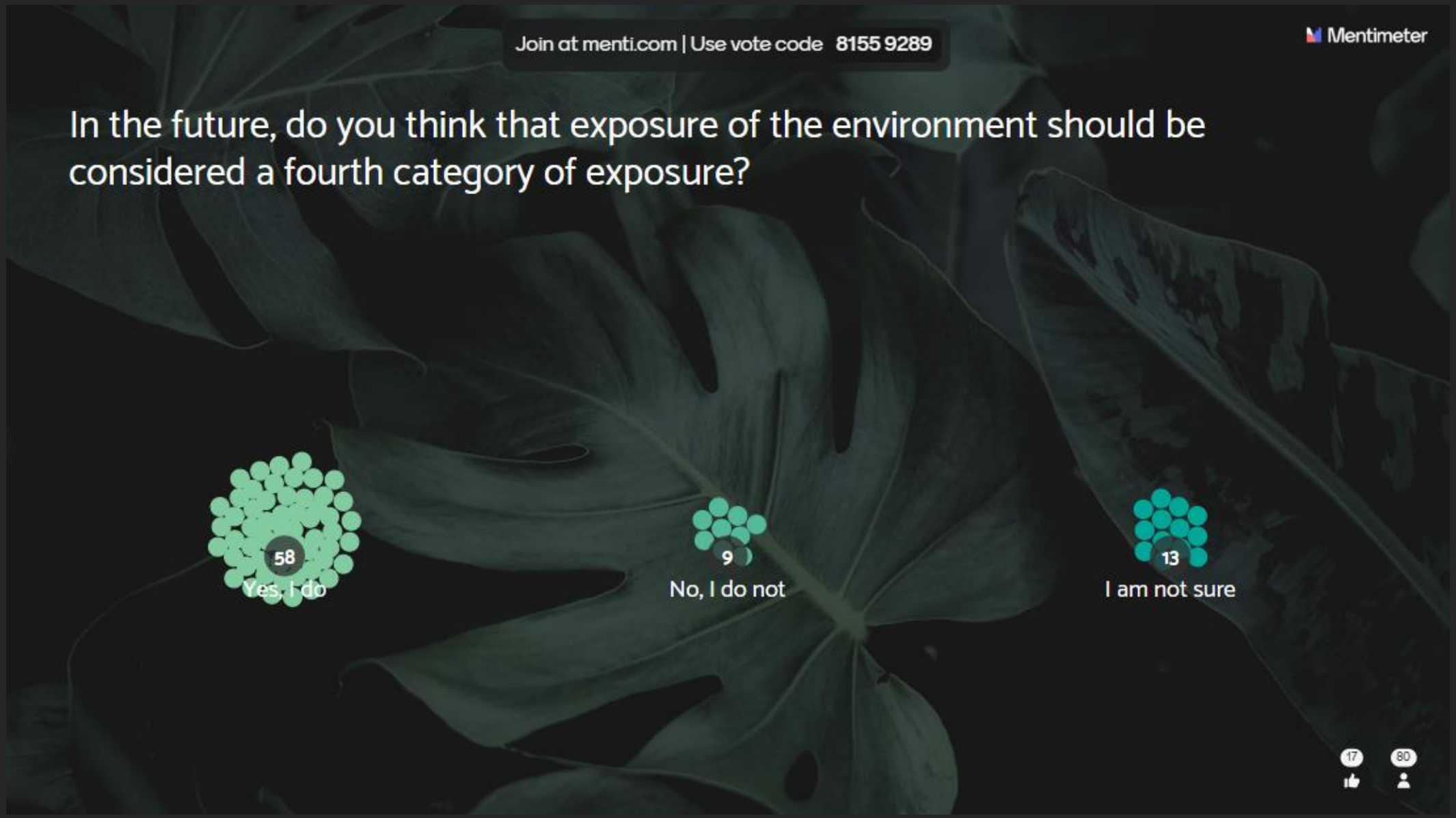
Mentimeter
In the context of environmental radiological protection, do you think we should prioritize:
32
The inherent value of nature
3
The benefits we receive from the environment
39
It depends on the situation
6
74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Mentimeter
In the future, do you think that exposure of the environment should be considered a fourth category of exposure?
58
Yes, I do
9
No, I do not
13
I am not sure
17
80

Current reflections
Broadening consideration of the environment

Task Group 127

Exposure Situations and Categories of Exposure

Should the environment be considered a fourth category of exposure? If so, how should that category be defined?

Environmental radiological protection: Measures taken to prevent or reduce the frequency of deleterious radiation effects in animals and plants (biota) in their natural environmental setting to a level where they would have a negligible impact on the maintenance of biological diversity; the conservation of species; or the health and status of natural habitats, communities, and ecosystems [ICRP Publication 124, 2014]

The traditional approach "may not be sufficient when considering ecosystems that are created and managed by people for the purposes of delivering goods, services, and cultural value for human populations" [Clements et al 2021]

What should we be protecting and why?

Current reflections
Broadening consideration of the environment

"While the work already undertaken by ICRP will remain a cornerstone, inclusion of more global considerations of environmental protection in the context of 'sustainable development' and concerns about the 'quality of life', including the services provided by the environment and ecosystems as well as the impacts of the implementation of protective actions, may be considered for inclusion in future general recommendations"
[Clements et al 2021]

Protection of the environment: Protection and conservation of: non-human species, both animal and plant, and their biodiversity; environmental goods and services such as the production of food and feed; resources used in agriculture, forestry, fisheries and tourism; amenities used in spiritual, cultural and recreational activities; media such as soil, water and air; and natural processes such as carbon, nitrogen and water cycles
[IAEA Nuclear Safety and Security Glossary, 2022]

What are appropriate protection endpoints for "environment"?

Current reflections

Considerations span multiple task groups

Task Group 114

Reasonableness and Tolerability in the System of Radiological Protection

What is meant by tolerable and reasonable in environmental radiological protection?

Task Group 125

Ecosystem Services in Environmental Radiological Protection

What is the added value to including reflection on the human-centered benefits of nature? What would practical implementation of an ecosystem services approach look like?

Task Group 124

Application of the Principle of Justification

How to consider and value the benefit of protecting non-human entities and ecosystems?

Task Group 129

Ethics in the Practice of Radiological Protection

What are the ethical issues and challenges at stake in environmental radiological protection?

ICRP

Current reflections
Sustainable development

17 interlinked global **Sustainable Development Goals** (SDGs) designed to be a "blueprint to achieve a better and more sustainable future for all".

Ensure healthy lives and **promote well-being** for all at all ages

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

[See Rühm et al 2023, 2024]

The primary aim of The System of Radiological Protection 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" (ICRP Pub 103)

"There has been a shift in society from the long-held anthropocentric approach to protection of the environment to one that embraces both biotic and, sometimes, abiotic components of the environment… Of particular importance has been the concept of sustainable development, including recognition of the need to protect all living resources." (Editorial, ICRP Pub 108)

ICRP Environmental Radiological Protection (ERP) - Potential Evolution, Benefits/Impact

Vision Continuous improvement of the ERP framework through periodic review, stakeholder engagement, and integration of up-to-date science, with the goal of staying 'fit-for-purpose' and ensuring effective protection.

Rationale for Evolution

1. Scientific advancement
   latest scientific knowledge, addressing gaps and emerging challenges
2. Policy and regulatory effectiveness
   clarification, easier application, alignment with international organisations – policies, strategies, regulatory frameworks
3. More streamlined - optimised protection
   integration of human and environmental protection, enhanced protective actions/measures)
4. Stakeholder engagement
   interactive dialogue to inform decision-making, feedback from stakeholders – civil society, industry, policy/regulatory authorities, academia, implementers/practitioners

Guiding Principles

1. Science-based policy updates
   changes grounded in scientific evidence and tested through impact/risk assessment, transparency and peer-review)
2. Practicability, flexibility and usability
   user-friendly and flexible for regulators, industry, environmental managers, clarity and ease of implementation without compromising protective goals
3. Integration with human health protection
   harmonisation of ERP actions with human radiological protection strategies, integrated risk management approaches addressing human and environmental impacts)
4. Adaptive and Forward-Looking
   flexibility to include future results and regulatory developments

Benefits

1. Enhanced regulatory clarity and efficiency
   clearer guidelines for more efficient, effective application, facilitation of regulators and other stakeholders in understanding and applying ERP actions
2. Improved protective outcomes
   more comprehensive risk management strategies
3. Global consistency and cooperation
   align with international policies/regulations, harmonized practices for different exposure situations
4. Support for sustainable development
   better demonstration to support the sustainable use of resources and conservation of biodiversity