

The Future of Radiological Protection

20th November 2020

**IAEA International Conference on Radiation Safety:
Improving Radiation Safety in Practice**
Virtual Meeting, 9th - 20th November 2020

Dr. Claire Cousins
Chair, ICRP

ICRP and Radiological Protection

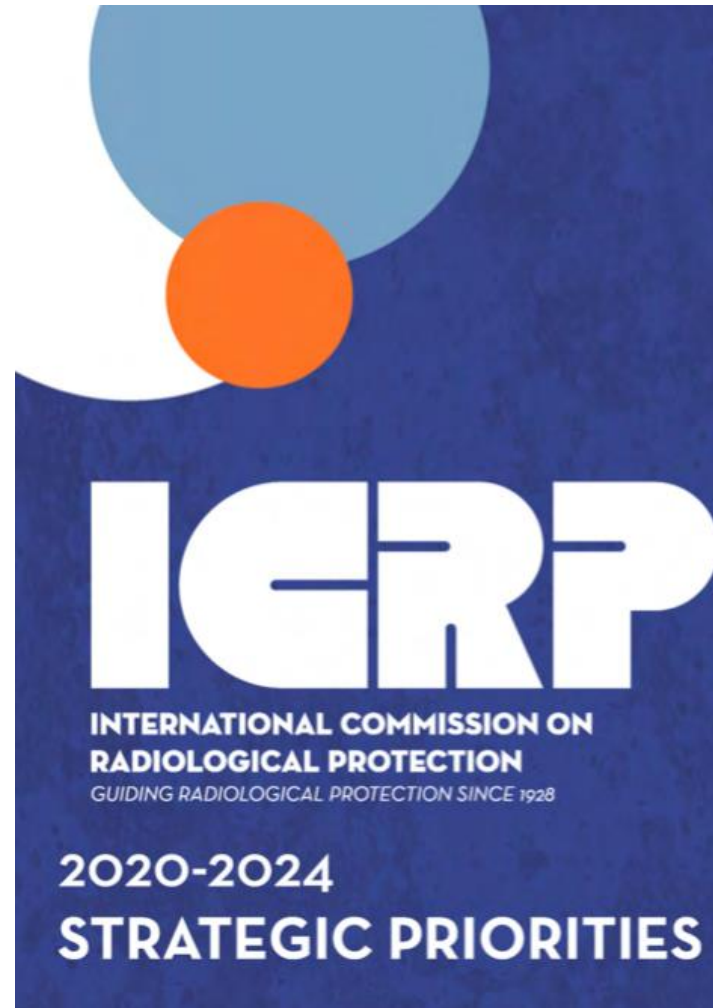
ICRP has been providing recommendations and guidance on radiological protection for over 90 years



Future of RP for ICRP

- **Refining system of radiological protection**
- **New areas of RP to be considered**
- **Encouraging recruitment of members, especially younger people**
- **Need for timely and accurate information to be readily available**

Strategic Priorities 2020-2024



STRATEGIC PRIORITIES

*Refine the System
of Radiological
Protection*

*Strengthen our
Engagement with
Professionals,
Policy Makers, and
the Public*

*Ensure ICRP
Continues to Operate
as a Well-Governed
and Forward-Looking
Organisation*

Strategic Priorities 2020-2024

REFINE THE SYSTEM OF RADIOLOGICAL PROTECTION

Key Actions

Regularly evaluate:

- Advances in science
- Technological developments especially in medicine
- Emerging domains needing radiological protection guidance e.g. veterinary patients and space travel

Identify and encourage research to support radiological protection

Review the system of radiological protection, working towards an update of the general recommendations to ensure it remains fit for purpose

STRENGTHEN OUR ENGAGEMENT WITH PROFESSIONALS, POLICY MAKERS, AND THE PUBLIC

Key Actions

Work with stakeholders, especially in the review of the system of radiological protection, through ICRP symposia, open workshops, and consultation

Engage with patients, workers, and the general public using ICRPEDIA, social media, and other means

Increase outreach worldwide, with special attention to:

- The medical sector and nuclear installations
- Affected populations
- Under-served regions of the world

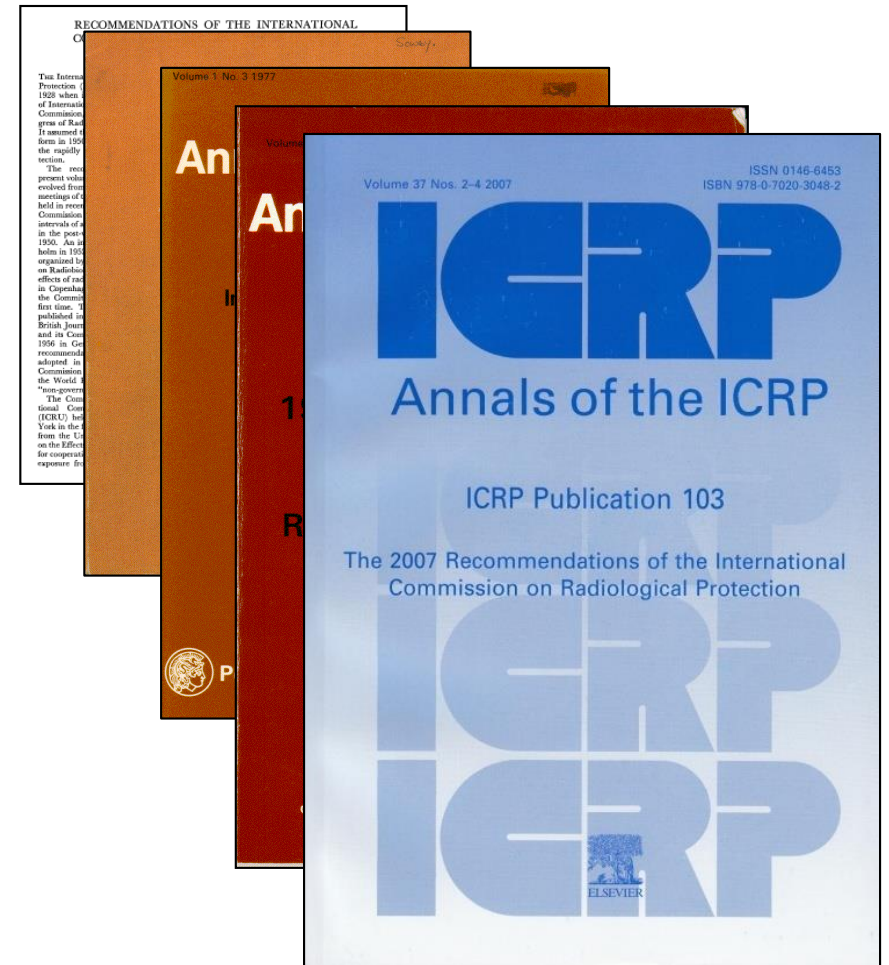
Fundamental Recommendations

Latest:

ICRP Publication 103

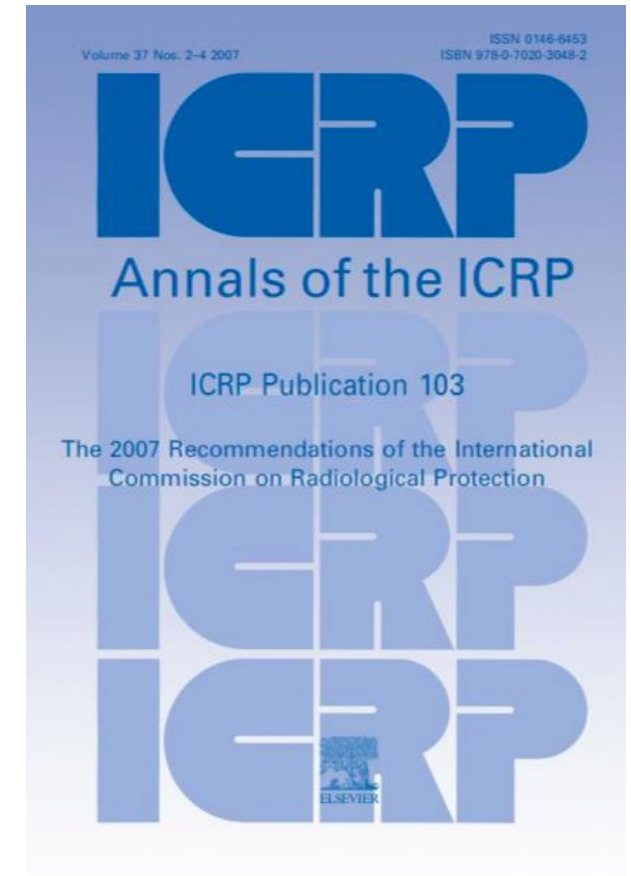
2007 Recommendations of the International Commission on Radiological Protection

Total 14 sets of fundamental recommendations since 1928



ICRP *Publication 103*

- Long gestation, commencing 1998
- Technical discussion IRPA meetings 2000 & 2004
- Draft web consultations 2004 & 2006
- Two progress reports
- Publication in 2007



System of Radiological Protection

- **Over 20 years since last major system review commenced**
- **Main Commission initiated brief overview May 2016**
- **System basically sound**
- **Recognised need for some clarification and explanation**

System of Radiological Protection

**Now commenced more
in-depth review**

**Route to new fundamental
recommendations is a journey on
a long and winding road**

Changes since *Publication 103*

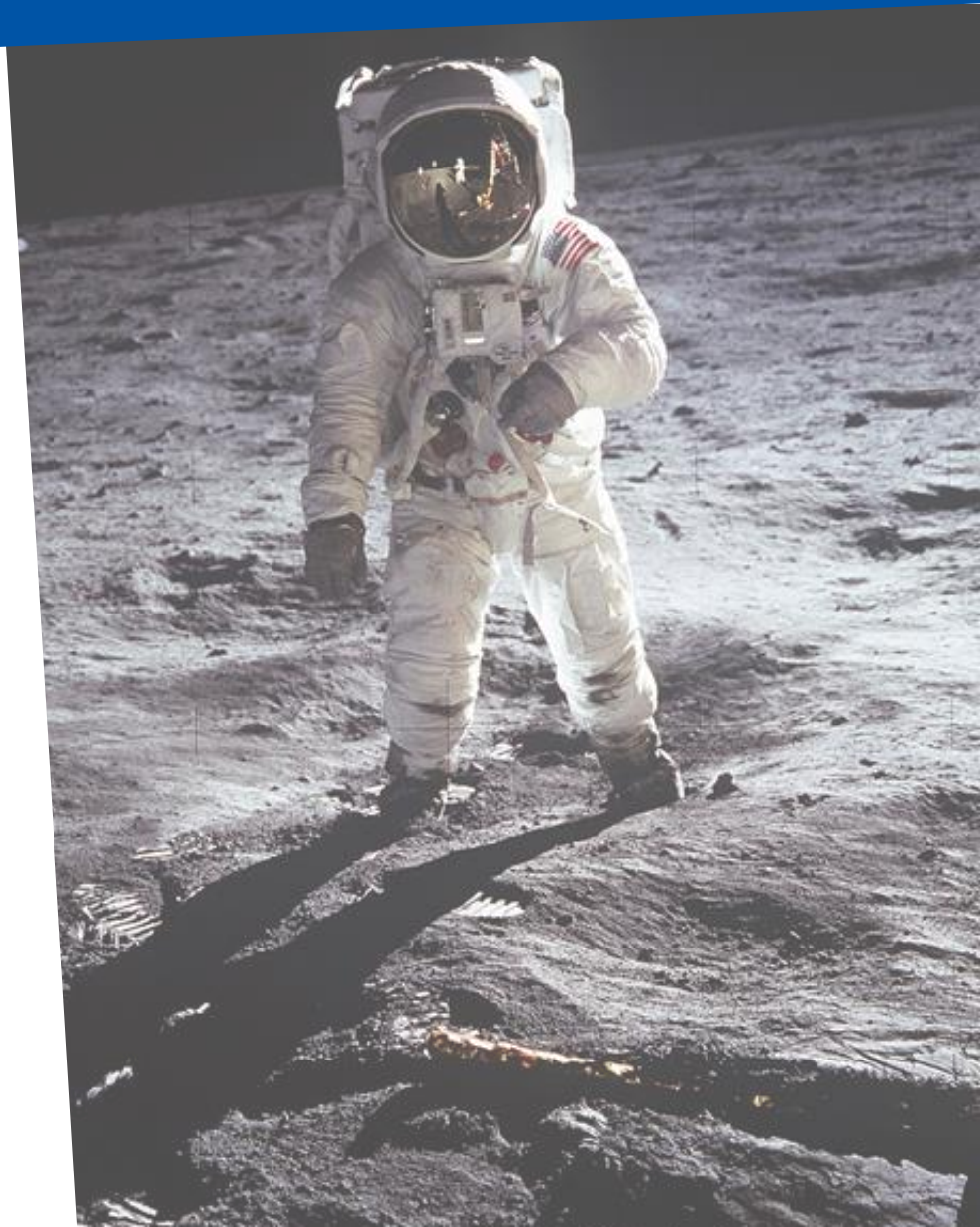
- **More than 40 ICRP Publications since *Publication 103***
- **Statement 2009: Radon**
 - Upper value reference level radon in dwellings 300 Bq m⁻³
- **Statement 2011: Tissue Reactions**
 - Equivalent dose limit 20mSv per year lens of the eye

Changes since *Publication 103*

- **Ongoing development of RP of the environment and its integration into the overall system**
- **Ethical aspects of RP and applying the concepts across the scope of the recommendations**

New Areas of RP

- **Veterinary practice (TG110)**
 - First time ICRP has considered RP of the 'veterinary patient'
- **Risk and dose assessment for RP of astronauts (TG115)**
 - Collaboration with International System Maturation Team (ISMT) and several of its radiation experts from international space agencies



System Review: The Next Decade

- **Continue work to support current recommendations**
- **Consider publications that need updating**
- **Recognise gaps in the system**
- **Identify ‘building blocks’ and essential work required for the next recommendations**
- **Prioritise programme of work**

Committee 1 Work in Progress

**TG
64**

Cancer risk from plutonium & uranium

**TG
102**

Detriment calculation methodology

**TG
91**

Risk inference at low doses (DDREF)

**TG
111**

Individual response of humans to ionising radiation

**TG
99**

Reference animal and plant monographs

Committee 2 Work in Progress

**TG
79**

The use of dose quantities in RP
(*Pub 147*)

**TG
99**

Reference animal and plant
monographs

**TG
103**

Adult mesh-type phantoms
(*Pub 145*) and then paediatric
mesh-type phantoms

**TG
36**

Dose coefficients for
radiopharmaceutical administration
(with C3)

**TG
95**

Public dose coefficients
Parts 1 & 2

**TG
112**

Emergency dosimetry

Committee 3 Work in Progress

**TG
108**

Optimisation of RP in digital radiography, fluoroscopy & CT in medical imaging

**TG
110**

RP in veterinary practice

**TG
109**

Ethics in RP for medical diagnosis and treatment

**TG
113**

Reference organ and effective dose coefficients for common diagnostic x-ray imaging examinations (with C2)

Committee 4 Work in Progress

**TG
93**

RP people & environment in the event of a large nuclear accident
(Pub 146 update 109 & 111)

**TG
98**

Application of recs to exposures from contaminated sites from past industrial, military and nuclear activities

**TG
97**

Application of recs for surface and near-surface disposal solid radioactive waste

**TG
114**

Reasonableness and tolerability in the system of RP

Topics Under Consideration

- **Effects of ionising radiation on circulatory diseases**
- **Effects of ionising radiation on offspring and next generations (update *Pub 90*)**
- **RBE, Quality and Weighting factors**
- **Updates to the concept of detriment**
- **Dose coefficients for embryo/fetus and newborn child**



Topics Under Consideration

- **Optimisation in medicine**
- **Biomedical research (update *Pub 62*)**
- **Exposure situations**
- **Categories of exposure**
- **Conceptual considerations of dose limits, constraints and reference levels**



Mentorship Programme

Mentorship Programme

- **Engage early- to mid-career professionals as mentees in Task Groups with ICRP member as mentor (usually member of TG)**
- **Part-time arrangement with mentees continuing to work at home organisation**
- **Committee Chairs, in consultation with TGs and Scientific Secretariat, identify suitable TGs and mentors**

Mentorship Programme

- **Mentee for one year, with possibility of renewal**
- **Assigned a specific task**
- **Initial trial phase and now 17 mentees working on projects with 8 different Task Groups**
- **Open application process available on the ICRP website**
- **Important initiative to encourage young people to work in radiological protection and with ICRP**

ICRPÆDIA

THE SYSTEM OF RADIOLOGICAL PROTECTION

- **Web based information on RP**
- **Still in its infancy with much work to be done**
- **Aim is for plain-language summary with more in-depth information available for those who require it**

Welcome to **ICRPædia**, the home for information on The System of Radiological Protection developed by The International Commission on Radiological Protection (ICRP) [\[link\]](#). ICRPædia is the work of ICRP members.

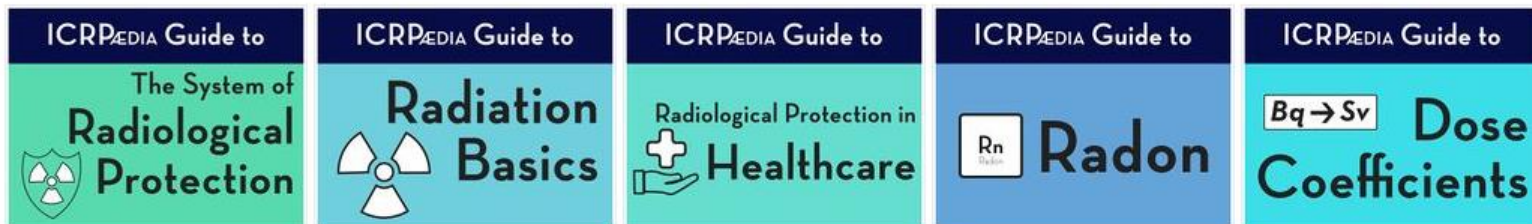
The System of Radiological Protection is the basis of all standards, regulations, and practice of radiological protection world-wide, for the protection of patients, workers, the public, and the environment from ionising radiation.

The definitive reference for the recommendations and guidance of ICRP [\[link\]](#) is the dedicated journal Annals of the ICRP [\[link\]](#).

ICRPædia is still in it's infancy, and growing. Come back regularly to see what's new.

ICRPædia Guides

If you're looking for somewhere to start, our guides are the perfect place! Each guide contains a few modules that cover the topic at a high-level. ICRPædia contains much more than is linked directly in these guides but they are a great way to start learning and exploring.



Latest Topics

ICRPædia is always being updated. Take a look at our newest pages here!



Cosmic Radiation in Aviation

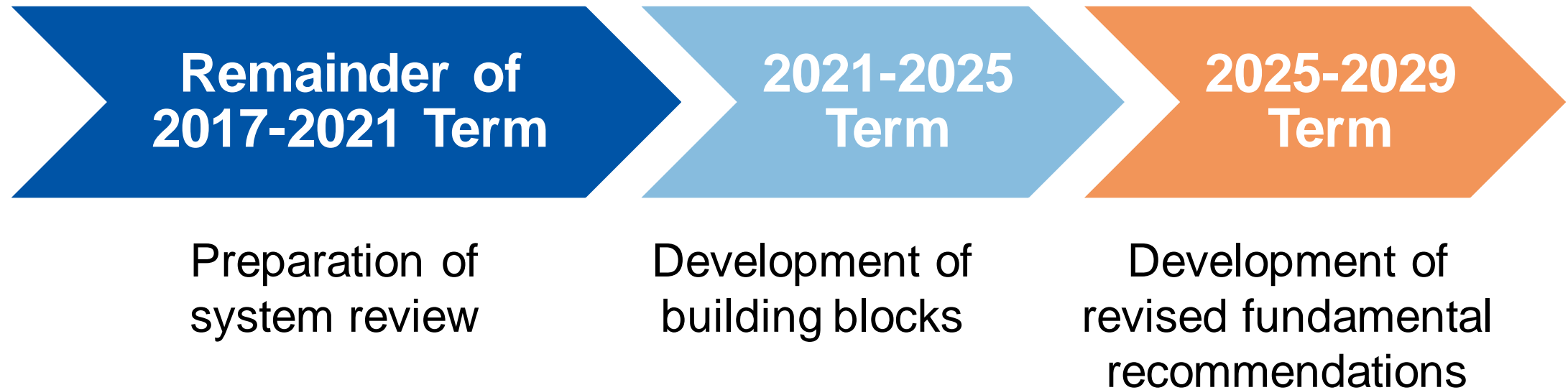
Major Topics

- System of radiological protection
- Radiological protection in healthcare
- Radiation effects and risks

Under Development

- Ethical foundations
- Airport screening
- NORM
- Protection of the environment

Possible Timeline System Review



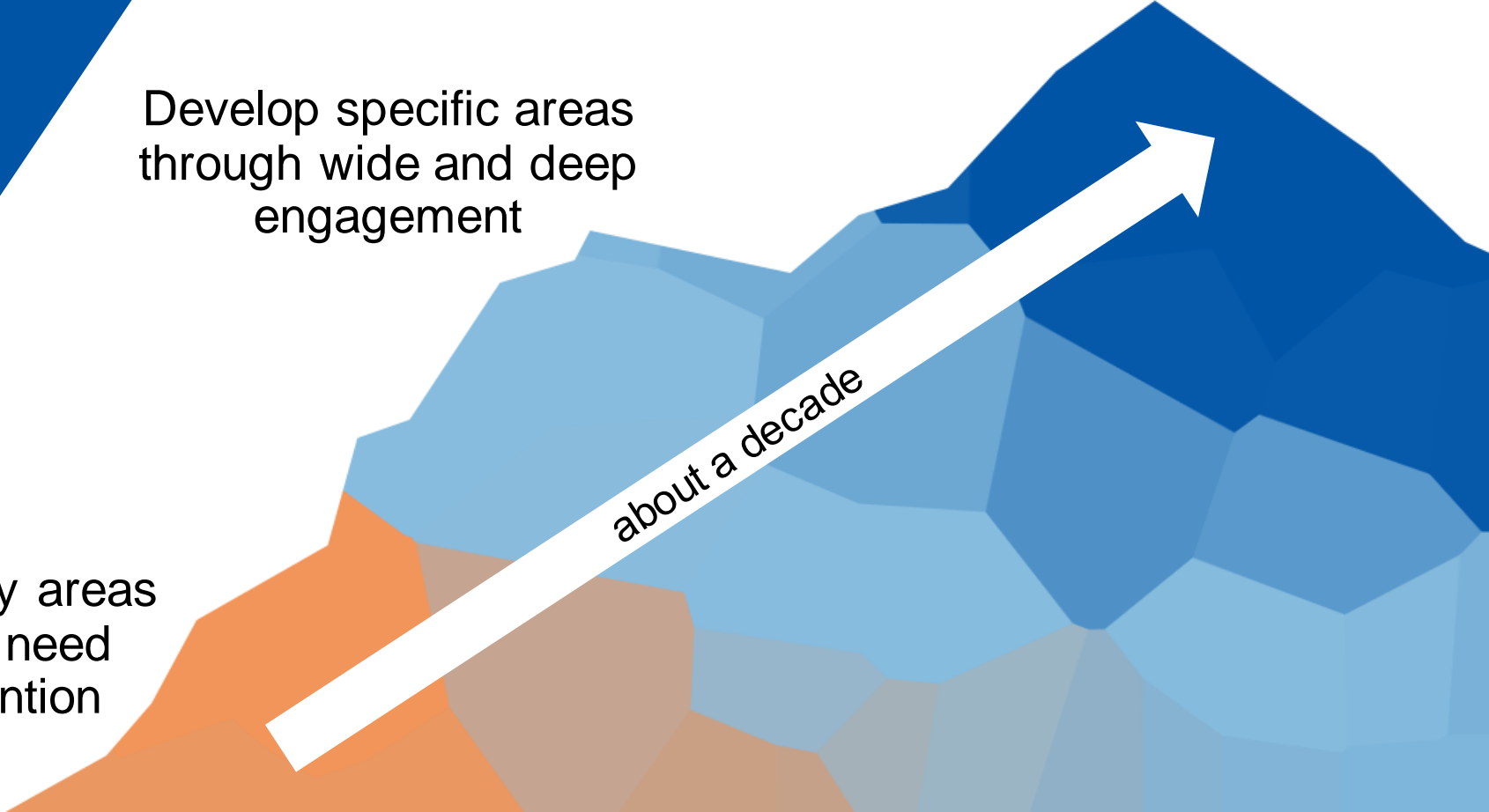
Review & Refinement of the System of Radiological Protection

Identify areas
that need
attention

Develop specific areas
through wide and deep
engagement

Draft and consult on new
fundamental
recommendations

about a decade



Key Role of ICRP Symposia

- **ICRP 2021:** Focus on launching process, seeking feedback facilitated by paper on areas to be addressed published in advance
- **ICRP 2023 & 2025:** Presentation and discussion of building blocks
- **ICRP 2027:** Presentation, discussion, consultation on draft fundamental recommendations
- **ICRP 2029:** Launch of new fundamental recommendations?



ICRP2021

1-4 NOV  VANCOUVER

6th International Symposium on the
System of Radiological Protection

[ICRP2021.COM](https://www.icrp2021.com)

Remainder of 2017-2021 Term: Preparation

- **Minimise establishment of new TGs and finish work of TGs not related to revision**
- **Broadly announce the beginning of the review & revision**
- **Take advantage of opportunities to obtain input on issues to be addressed**
- **Identify areas needing further work for the revision**
- **Round 1 of building-block TGs, focusing on fundamental issues (mainly TGs 79, 91, 102, 111, 114)**

2021-2025 Term: Building Blocks

Enhanced engagement during development

- Hold open workshops* in connection with TG meetings
- Present work-in-progress at conferences and seek feedback
- Publish papers in peer-reviewed journals

* In particular, collaborating with liaison organisations according to the topics

2021-2025 Term: Building Blocks

Enhanced consultation

- Extended consultation periods
 - Open workshops* during consultation
- * In particular, collaborating with liaison organisations according to the topics

Enhanced engagement during development

- Hold open workshops* in connection with TG meetings
 - Present work-in-progress at conferences and seek feedback
 - Publish papers in peer-reviewed journals
- * In particular, collaborating with liaison organisations according to the topics

2021-2025 Term: Building Blocks

Round 2 of building-block TGs

Focusing on topics that rely on earlier results

Enhanced consultation

- Extended consultation periods
 - Open workshops* during consultation
- * In particular, collaborating with liaison organisations according to the topics

Enhanced engagement during development

- Hold open workshops* in connection with TG meetings
- Present work-in-progress at conferences and seek feedback
- Publish papers in peer-reviewed journals

* In particular, collaborating with liaison organisations according to the topics

2025-2029 Term: 'New 103'

- **Complete all building-block TGs**
- **Plan multiple rounds of consultation on the new fundamental recommendations**
 - Aim for one consultation period to align with ICRP 2027
- **Hold several regional workshops for feedback during each consultation**
 - Work with liaison organisations and others to hold workshops

2025-2029 Term: 'New 103'

ICRP 2029 → launch of new fundamental recommendations?

Revision and Funding

- **Broad ENGAGEMENT in the revision of the system is essential but not without cost**
 - The system of RP will be revised over the coming decade
 - An unprecedented level of engagement is essential for the success of this process
 - ICRP is ready to take on this challenge, but as a charity we need your financial support to ensure full engagement for all
 - Together we 'Freed the Annals' – now together let's revise the system of radiological protection
- **ENGAGE in the revision of the system:** contact us at chair@icrp.org

Nominations for Committee Membership

- **Committees operate on four-year terms**
- **The next term is 1 July 2021 – 30 June 2025**
- **Nominations for Committee membership will be open approximately December 2020 to March 2021**
 - Need two nominators (anyone) and a brief CV (2 pages)
- **The ICRP Main Commission will vote on Committee membership in May 2021**

Future Main Commission

- **Members retiring at end of 2017-2021 term**

- Claire Cousins (Chair)
- John Harrison (C2 Chair)
- Jacques Lochard (Vice-Chair)
- Carl-Magnus Larsson

- **At least new Chair, Vice-Chair and Committee 2 Chair for the next term**

- **New leadership taking forward the work for the next recommendations**

ICRP International Conference on Recovery After Nuclear Accidents

Radiological Protection Lessons from Fukushima and Beyond

1 - 4 December, 2020

原子力事故後の復興
に関する国際会議
に福島及びこれまでの
事故から学ぶ放射
線防護の教訓
令和2年12月1日～4日

A VIRTUAL
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