



# ICRP Work Shop on the Future of Radiological Protection, 19-20 October 2021

## IRPA perspective on the Review of the System of Radiological Protection

***Sigurður M Magnússon***

*Icelandic Radiation Safety Authority.*

*Chair, IRPA Task Group on the Review of the System of Radiological Protection*



# International Radiation Protection Association (IRPA)

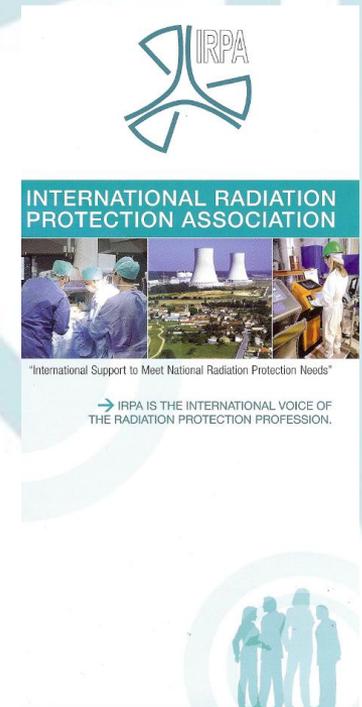
**The international professional association for  
RP professionals since 1965**

**53 Associate Societies**

**68 countries**

**over 18 000 individual members**

*Enormous resources of practical knowledge  
and experience in radiation protection  
including scientists, operators, regulators,  
medical practitioners and advisors.*



*Covering a multicultural background, large and small societies*



# Role of IRPA

- To promote IRPA as the international voice of the RP profession through engagement with other international organisations and professional bodies.
- To support the needs of the Associate Societies by developing, enhancing and sharing good practices and high standards of professionalism.
- To support the education and training of RP professionals.



# Effectiveness of the RP System

- In 2015 IRPA consulted with the Associate Societies on the broad effectiveness of the RP system and its ability to be widely communicated and understood by interested parties.
- Summary of outcome “ IRPA Consultation: is the system of protection fit for purpose and can it be readily communicated ? ” Views of the radiation protection professionals.
  - Journal of Radiological Protection 38 (2018)



# Reasonableness in optimization

- IRPA consultation on Reasonableness in Optimisation of Protection in 2020:
  - Associate Societies and international organisations.
  - A paper “ IRPA Perspective on ‘Reasonableness’ in the Optimisation of Radiation Protection “ on IRPA website, [www.irpa.net](http://www.irpa.net)
  - Both these IRPA initiatives are a very important input to the revision of the RP system providing the perspective of the professionals who have to live with the system.



# Reasonableness in optimization



**IRPA**  
INTERNATIONAL RADIATION PROTECTION ASSOCIATION

## IRPA PERSPECTIVE ON 'REASONABLENESS' IN THE OPTIMISATION OF RADIATION PROTECTION



### **1. Introduction and Background**

### **2. Fundamental Considerations and Context**

2.1. Radiation Protection Principles

2.2 Dose Response Model: LNT/Threshold

2.3 Ethical Values

2.4 Context of risks and natural background exposure

### **3. Principal Underpinning Factors for 'Reasonableness'**

3.1. Judgement Call

3.2. Proportionality

3.3. Stakeholder Engagement

3.4. Holistic 'All Hazards' Approach

3.5. Avoidance of Over-Conservatism

3.6. Value for Society – Optimal Use of Societal Resources

3.7. De Minimis Approach

3.8. Alignment with Radiation Safety Culture



# Task Group on the Review of the System of Radiological Protection

- Established in July 2021 to facilitate active IRPA involvement in the review process proposed by ICRP.
  - Sigurdur Magnusson, IRPA EC, chair
  - Bernard Le-Guen, IRPA president, vice chair
  - Claire-Louise Chapple, IRPA EC, vice chair
- The Task Group has 30 members from 20 AS representing thousands of RP professionals from all regions of the world.
- First task of the TG was to provide feedback on the ICRP “fit for purpose” paper.
- Feedback was received from 16 AS up to 5 October.



# Areas of Strong Agreement

- IRPA welcomes the ICRP initiative to an open and transparent engagement and is generally supportive of the approaches outlined in the ICRP paper.
- **Complexity and communication**
  - the complexity of the RP system and the resulting challenge to its communication is a concern
  - the importance of communicating with the public on radiation and risk is stressed
    - the use of the context of natural background and its variability to improve the communication of radiation risk is encouraged.



# Areas of Strong Agreement

- **Conservatism**
  - There is a concern that the RP system has become overly conservative and applications in the regulatory system are even more conservative.
- **Implementation of recommendations**
  - Recommendations must be implementable in the regulatory framework in a reasonable way.
- **Stability and justification for change**
  - Stability in recommendations is required.
  - Any change in recommendations must have a net positive benefit.



# Areas of Strong Agreement

- **Ethics aspects**

- Strong support for ethics basis in recommendations.
- The review of the System should identify areas where explicit incorporation of the ethical basis alongside the scientific basis would be beneficial.
- Fully integrate publication 138 in explaining the RP System and pursue lines of communication on the basis of ethics rather than “the System”.



# Areas of Strong Agreement

- There is strong support for:
  - improved clarity, consistency and transparent stakeholder engagement.
  - further explanation of ICRP intentions regarding protection of the environment and how and when this should be considered in practice.
  - inclusion of WHO health definition when considering detriment and benefit is supported.
    - Concern that using the WHO definition of health could be problematic to implement i.e., mental health effects resulting from exaggerated fear.



# Areas of Strong Agreement

- Very strong support for a holistic approach to optimization and for recommendations to
  - stress that optimisation is not minimisation
  - promote use of reasonable caution avoiding undue conservatism
  - include non-radiation effects in risk/benefit consideration
- Practical recommendations for holistic approach to optimisation are needed.



# Area of disagreement - LNT

- There needs to be a balance in managing risks at low doses so that the regulatory efforts and financial burden is commensurate with comparable risks in other industries.
- There is a concern that the LNT approach leads to unreasonable efforts at low doses and prevents practitioners from saying that a radiation practice is safe and. This may contribute to mental health impacts from fear of radiation.
- Can LNT be improved in the light of new research results? Are there alternative models that are tested and ready for use?



# Area of disagreement - LNT

- Almost all AS support continued use of LNT as pragmatic/conservative approach while recognizing uncertainties at low doses.
- One AS proposes that the introduction of a low dose threshold is investigated, e.g., between 1 and 5 mSv, with planned exposures below this threshold subject to no regulatory governance.
- One AS strongly disputes statements made regarding evidence for and use of LNT in radiation protection.



# Additional issues for ICRP to consider

- How to compare adequately chemical and radiation exposures.
- More consideration of the combined effects of radiological and chemical exposure should be provided, especially at low doses.
- More elaboration on uncertainties involved in estimating radiation dose and the total detriment is needed.



# Direction of revision

- The next ICRP General Recommendation ?

A publication that

- begins with a short description of the ethical basis of radiation protection,
- continues with an extensive description of the recommended RP System
- ends with recommendations concerning the implementation of the System - **fit for purpose for the next two decades.**



# In conclusion

- IRPA welcomes the inclusive approach taken by ICRP in developing new general recommendations.
- IRPA will participate actively in the revision of the ICRP general recommendations as the international voice of the RP profession providing the perspective of RP professionals.



# Opportunities to discuss the future ICRP recommendation



RADIATION PROTECTION FOR EVERYONE

## 6th European Congress on Radiation Protection

30 May – 3 June 2022

Budapest Congress Centre / Budapest, Hungary





# Opportunities to discuss the future ICRP recommendation

XII Congreso Regional IRPA de Protección Radiológica  
y Seguridad Nuclear



Protección Radiológica: adaptándonos a nuevos escenarios  
23 al 27 de Octubre 2022  
Santiago, Chile.



**There will also be IRPA Regional  
Congresses in Africa in October 2022  
and Asia/Oceania in February 2023.**

**For information see: [www.irpa.net](http://www.irpa.net)**



# Opportunities to discuss the future ICRP recommendation

**The IRPA16 International Congress hosted  
by the US HPS in Orlando, Florida.**



**Thank you very much !**