EUROPEAN RADIOECOLOGY ALLIANCE

A Strategic Research Agenda

Important for global harmonization of research priorities
and for describing the value of radioecology to stakeholders

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Coordinator, STAR Network of Excellence

IRSN
INSTITUT DE RADIOPROTECTION ET DE SÛRETÉ NUCLÉAIRE
Faire avancer la sûreté nucléaire

STAR
STRATEGY FOR ALLIED RADIOECOLOGY

EUROPEAN RADIOECOLOGY ALLIANCE

STAR
STRATEGY FOR ALLIED RADIOECOLOGY

Network of Excellence in Radioecology

9 partners from 8 countries

funded by the EC and partner contributions from Feb 2011 – July 2015

IRSN

STUK

Ciemat
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas

Bundesamt für Strahlenschutz

NATURAL ENVIRONMENT RESEARCH COUNCIL

SCK•CEN
STUDIECENTRUM VOOR KERNENERGIE
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE

Stockholms universitet

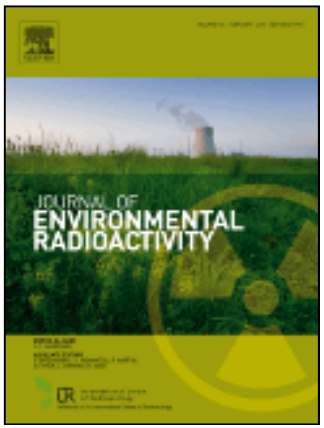
Statens strålevern
Norwegian Radiation Protection Authority

STAR published the first draft Strategic Research Agenda in radioecology

The SRA responds to the question:

"What topics, if critically addressed over the next 20 years, would significantly advance radioecology?"

The SRA is a VISION, in which the developers were told to <u>think creatively</u> and <u>without bounds</u>….



JENR (2013) 115:73-82

SRA

Three Grand Challenges and 15 Lines of Research

- **Challenge One:** To predict human and wildlife exposure more robustly by quantifying key processes that influence radionuclide transfers, and incorporate the knowledge into new dynamic models

  4 lines of research: A, B, C and D

- **Challenge Two:** To determine ecological consequences under the realistic conditions that organisms are exposed

  5 lines of research: E, F, G, H and I

- **Challenge Three:** To improve human and environmental radiation protection by integrating radioecology

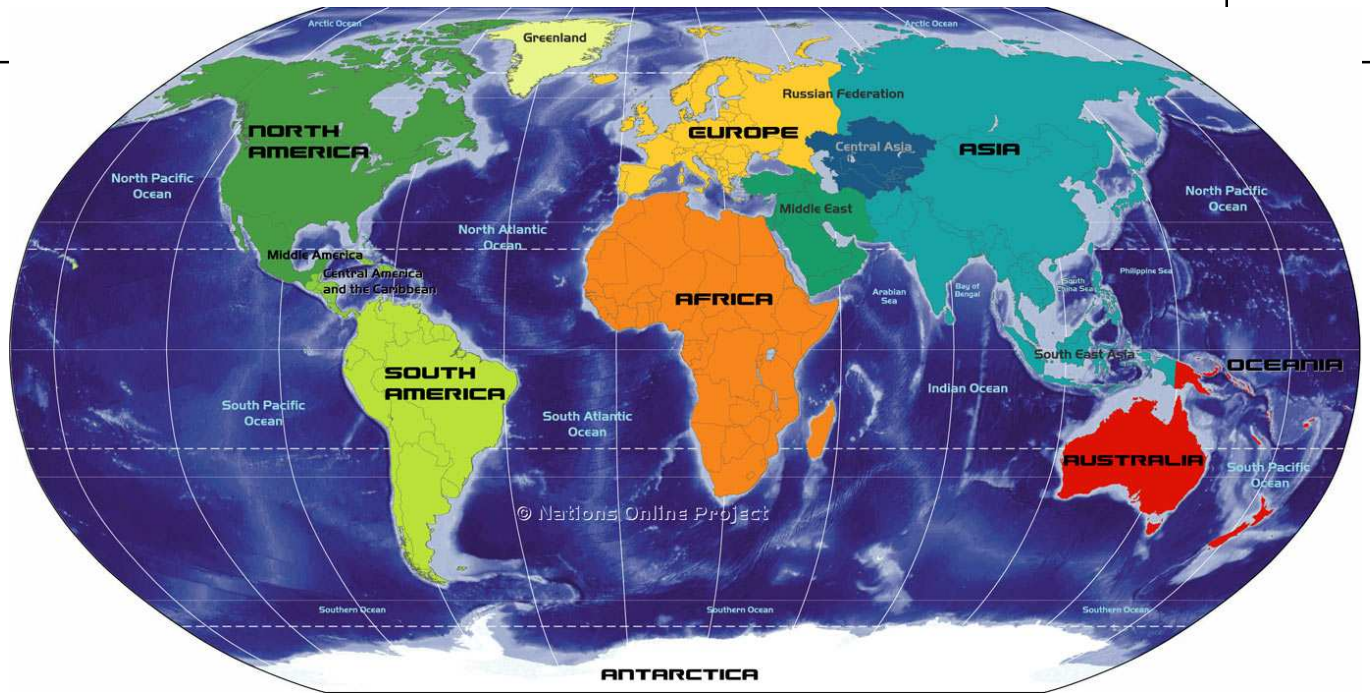
  6 lines of research: J, K, L, M, N and O

Web consultation of the SRA and Workshop

- Questionnaire was prepared
- **Sent to 4000 email addresses**: mid-July 2012.
- Questionnaire was available on the “Radioecology Exchange” (**www.star-radioecology.org**)
- Held a Stakeholder workshop in Paris

Response from the Questionnaire

	n
Total number of questionnaires received	110
Total number of countries covered by responses	36



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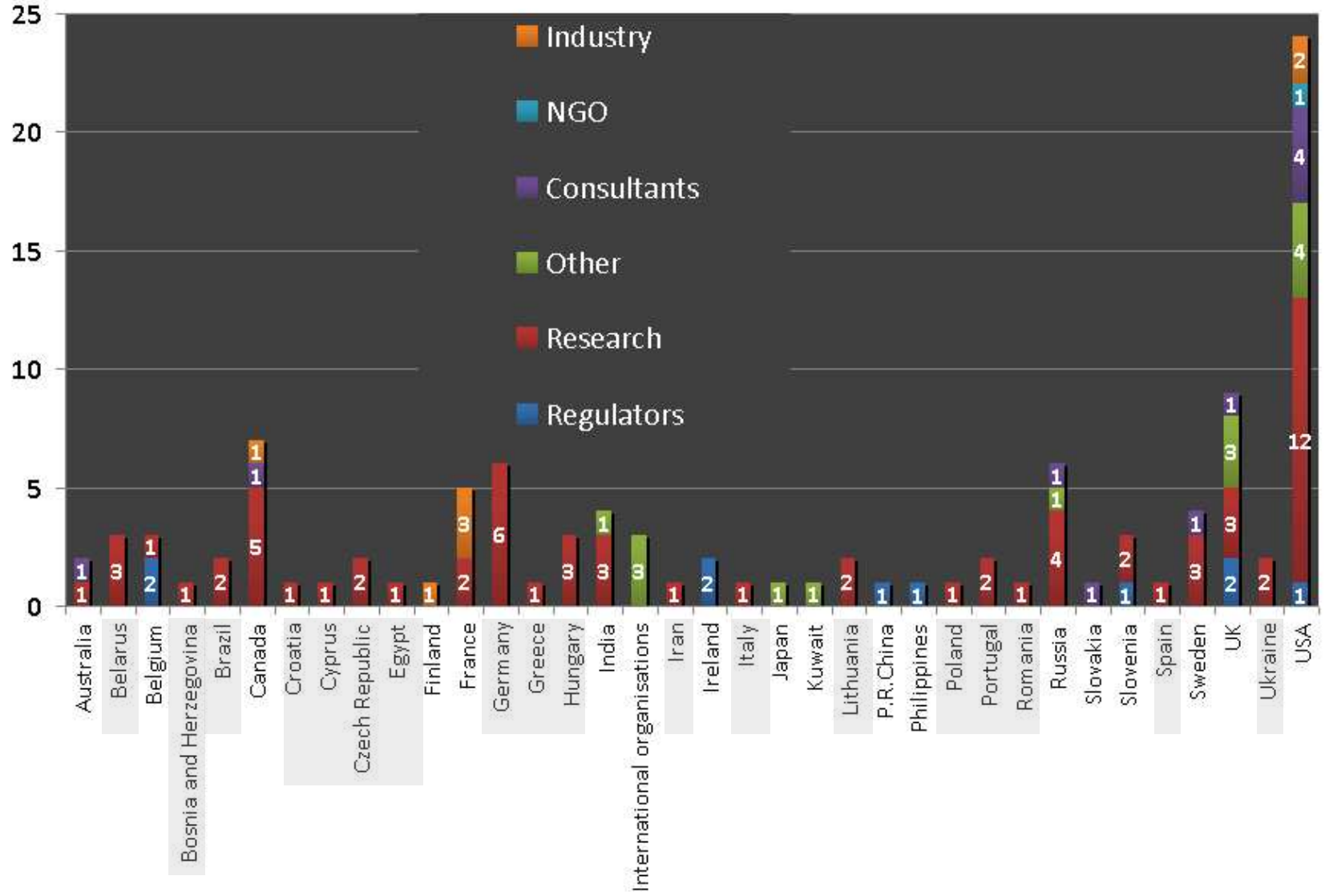
Responses by Country and type of organization



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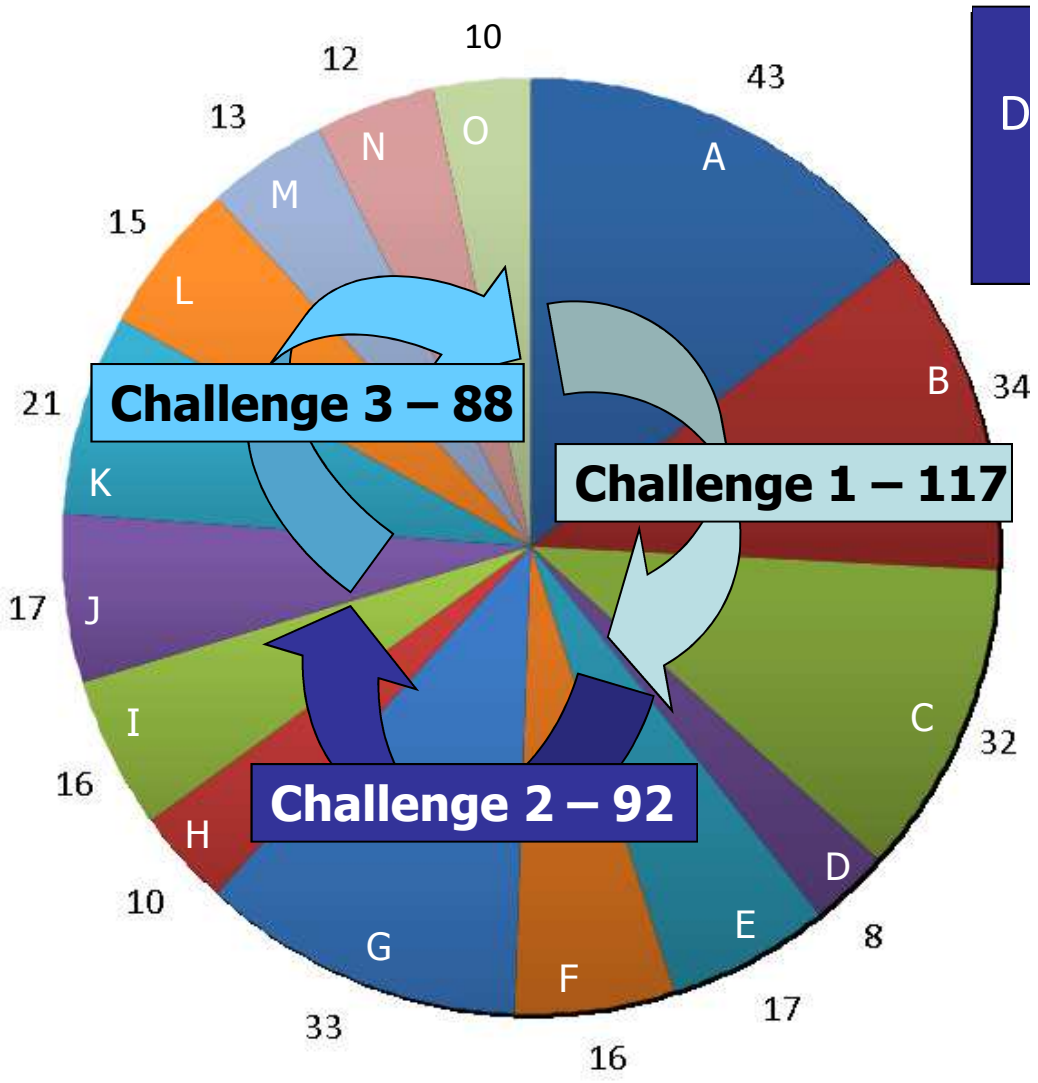
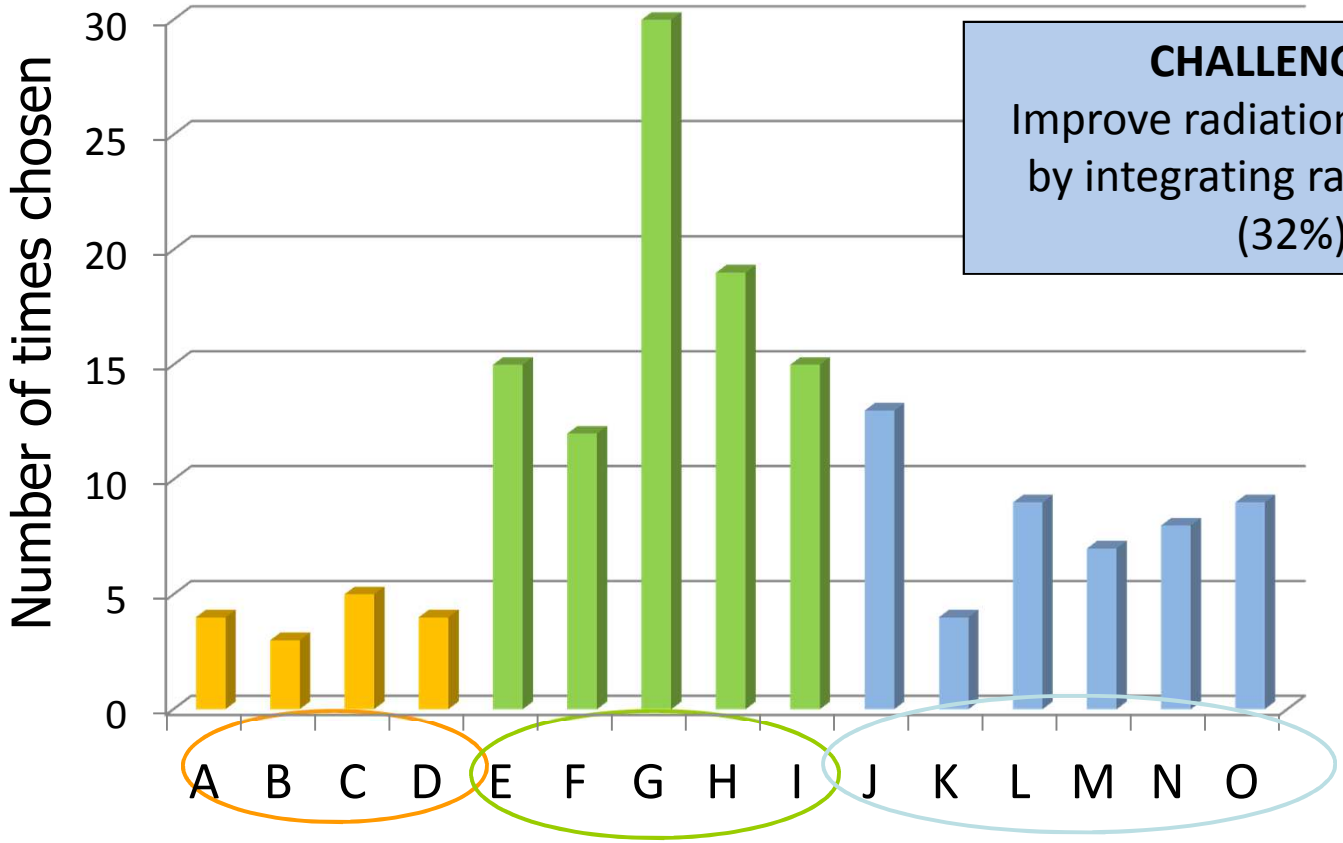
CHALLENGE- 3

Improve radiation protection by integrating radioecology (30%)



- J. Integrate uncertainty and variability into risk characterization
- K. Integrate human and environmental protection frameworks
- L. Integrate risk assessment framework for radiation and chemicals
- M. Provide a multi-criteria perspective in support of optimised decision-making
- N. Integrate ecosystem approaches, ecosystem services and ecological economics
- O. Integrate decision support systems

Which lines of research will be the most difficult to achieve?



CHALLENGE- 3
Improve radiation protection by integrating radioecology
(32%)

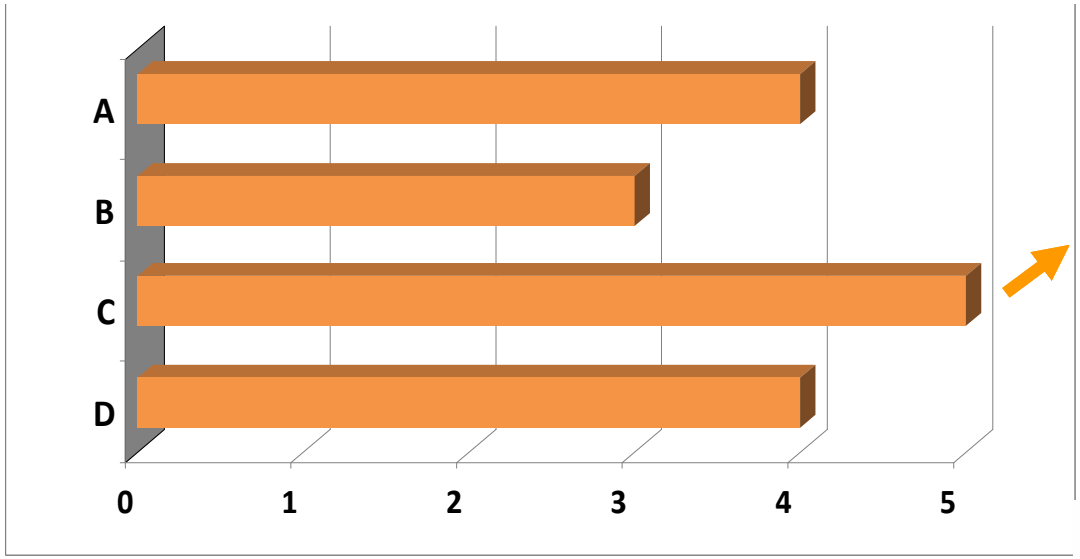
CHALLENGE- 1
Quantify key processes that most influence RN transfers
(10%)

CHALLENGE- 2
Determine ecological consequences under realistic conditions
(58%)

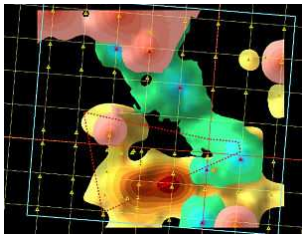
Most difficult to achieve?

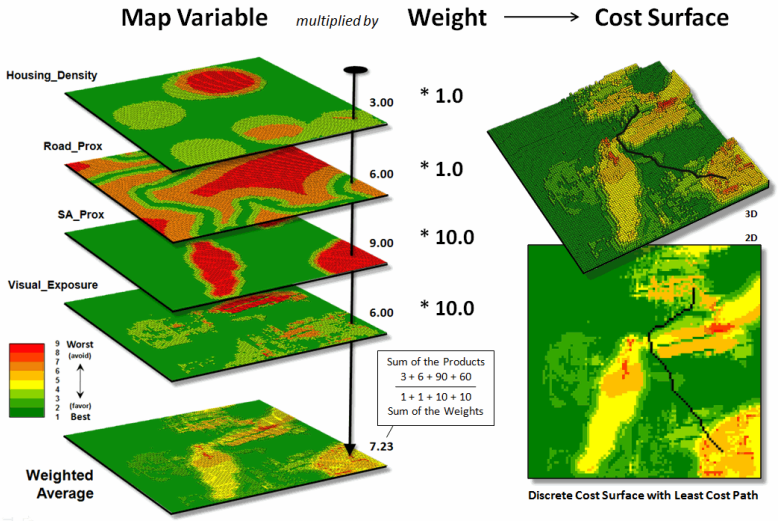
Challenge 1:

Quantify key processes that most influence RN transfers (10%)



C) Develop transfer and exposure models that incorporate physical, chemical and biological interactions,
and enable predictions to be made spatially and temporally

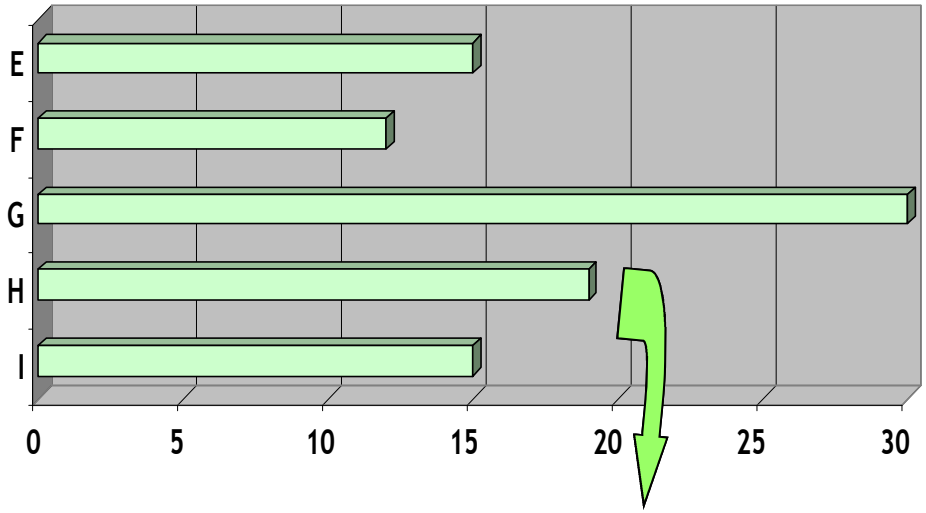




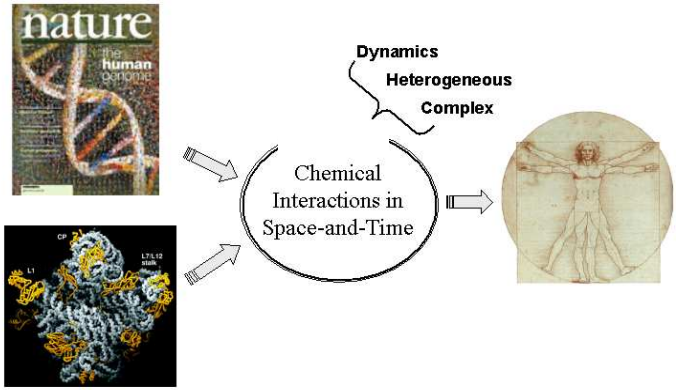
Most difficult to achieve?

Challenge 2:

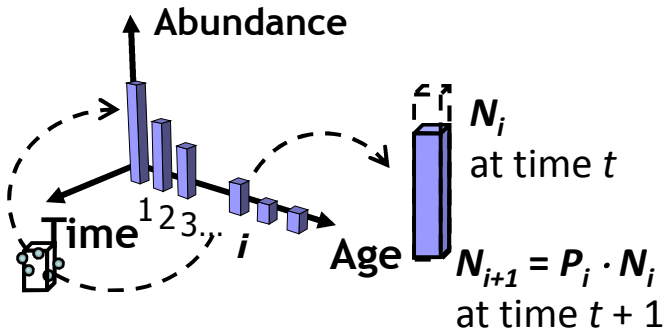
Determine ecological consequences under realistic conditions (58%)



G) Understand the interactions between ionising radiation effects and other co-stressors

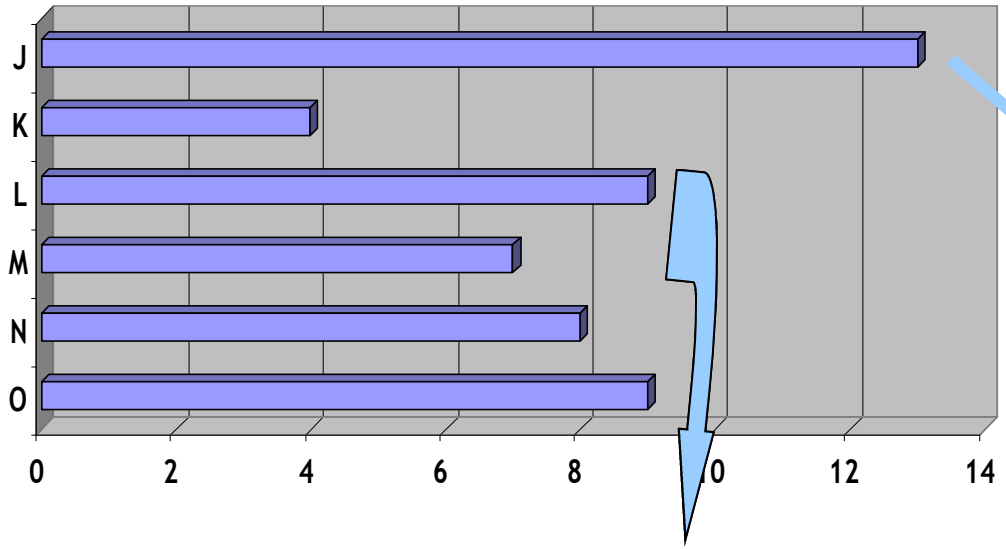


H) Understand the mechanisms underlying multi-generational responses to long-term ecologically relevant exposures



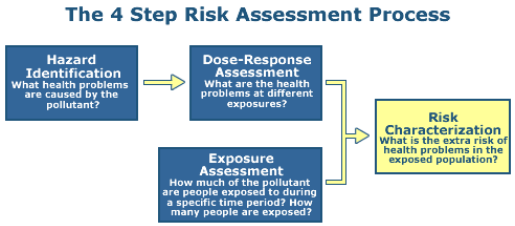
Most difficult to achieve?

Challenge 3: Improve radiation protection by integrating radioecology (32%)



J) Integrate uncertainty and variability from transfer modelling, exposure assessment, and effects characterisation into risk characterisation

L) Integrate the risk assessment frameworks for ionising radiation and chemicals



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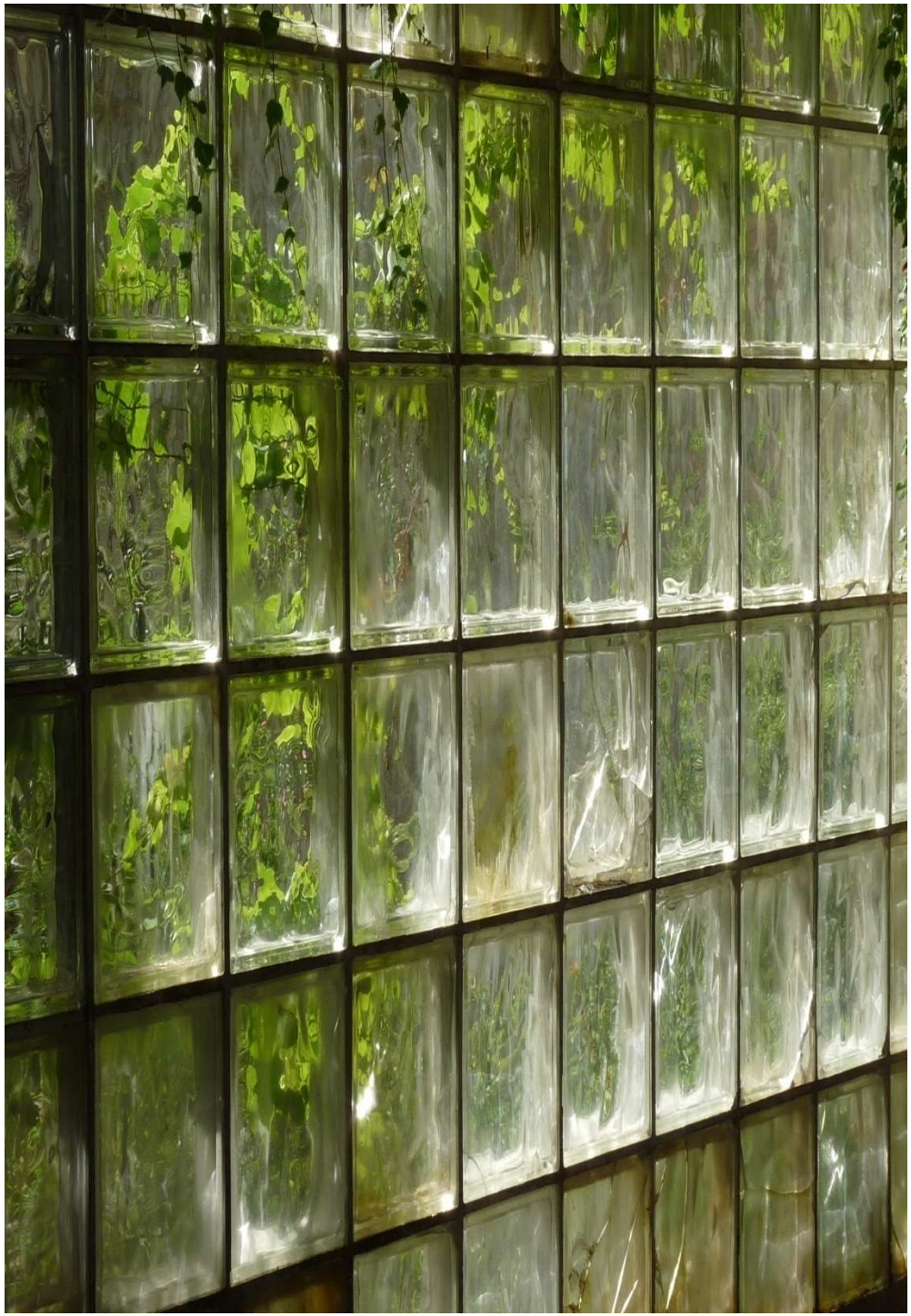
Strategic Research Agenda

a **consensus statement** of an **ENTIRE DISCIPLINE OF SCIENCE**

- a guide to efficiently prioritize research
- provide justification and show value to funding agencies



VALUE

must be expressed…

…to our **FUNDING AGENCY**,
our **STAKEHOLDERS**,
and the **PUBLIC**….
in ***crystal clear messages***

Espousing the value of our scientific discipline is required because **competition for funds are massive**

and unless a voice for radioecology is cast....funds will be allocated in another direction

The problem of determining what areas of research to fund permeates science policy…

EFFECTIVE lobbying is essential

THIS group… could become the central lobbying organization for radioecology!!