

## Stakeholder Views on Scientific Competences Needed for Future University-trained Postgraduates within the Field of Radiological Protection.

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### General Project Information

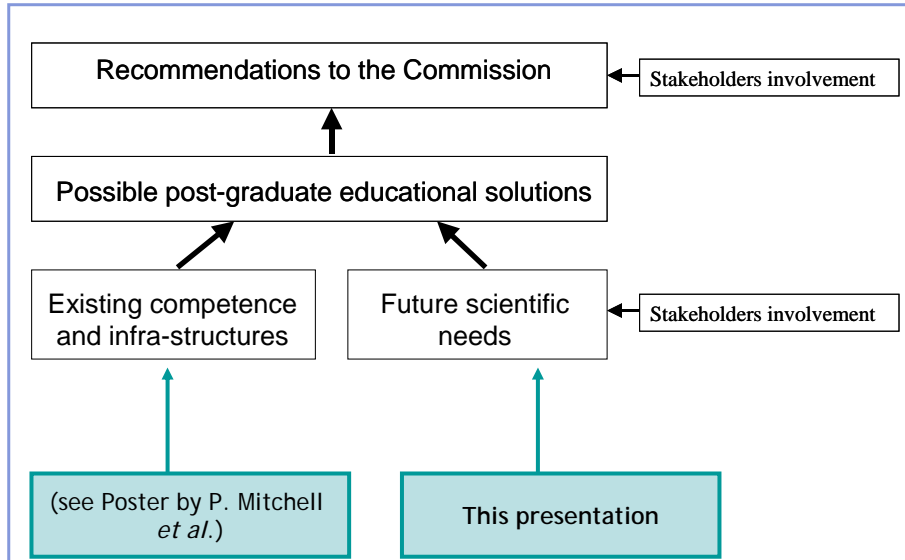
The objectives of EURAC are to strengthen the scientific academic competence and analytical skills within radiological protection, radioecology and radiochemistry and to secure the future recruitment of appropriately skilled post-graduates to meet the needs of European stakeholders.

EURAC is assessing the current and potential levels of post-graduate university provision in these disciplines within the EU and new entrant nations - paying particular attention to scientific and administrative issues, infrastructural requirements, constraints and issues of human mobility.

Based on consultations with stakeholders EURAC is focussing on innovative solutions and best co-ordinated practice within the current provision base.

Actions that could be taken by European institutions to secure the future of radiological protection, radiochemistry and radioecology post-graduate education in an expanded EU will be recommended.

## General Project Information



## Methodology

1. Review of existing literature
2. Creation of agreed questionnaire framework for use by all partners
3. Identification of key stakeholders by partners
4. Phase one survey of stakeholders through e-mail questionnaire
5. Consultation of stakeholders through face-to-face networking and/or telephone dialogue
6. Follow up to questionnaire responses through telephone dialogue
7. Compilation of data into a summary spreadsheet
8. Presentation of broad findings at partner meeting
9. Agreed criteria for analysis and clustering of data
10. Analysis and reporting of survey

## Summary of Findings(1)

### General Information

#### 72 Respondents

- 29 Government
- 20 Research
- 21 Industry
- 2 Other

All but 6 employ staff

All but 5 provide training

All but 15 engage in research

## Summary of Findings(2)

### Employment (1)

Stakeholder indication of numbers of new recruits per annum, categorised by professional level

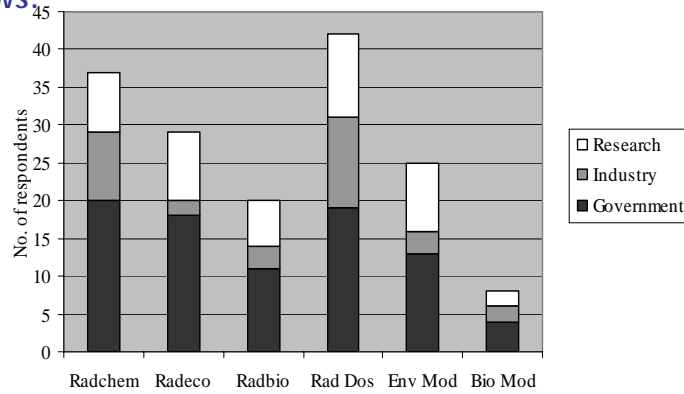
Professional level	Totally recruited annually (in fte)	% Employers requiring ≥ MSc
Manager	13	80
Professional expert	103	70
Technical advisor	59	50
Other	78	40
<b>Total</b>	<b>253</b>	

**National trends noted**

### Summary of Findings(3)

#### Employment (2)

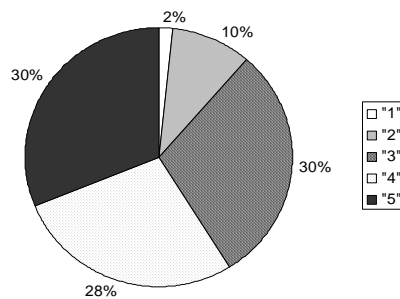
For specialist staff employed, the areas identified were as follows:



### Summary of Findings(4)

#### Employment (3)

The difficulties in employing appropriate staff were rated as follows (where 1 = easy, 5 = most difficult):

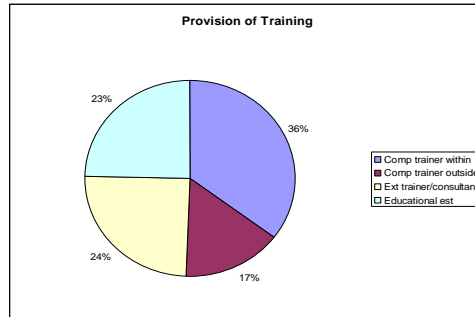


National trends noted

## Summary of Findings(5)

### Training (1)

Over half respondents indicated training at Masters level



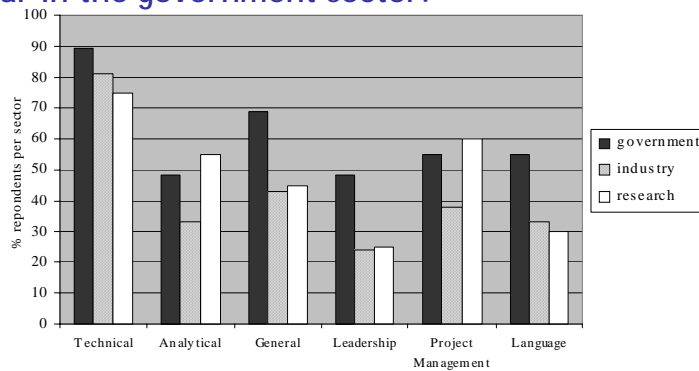
Provision of training	Total	Gov	(%)	Ind	(%)	Res	(%)
Company trainer within	49	18	62	15	71	16	80
Company trainer outside	22	14	48	4	20	4	20
External consultant	33	20	69	8	40	5	26
Educational est.	32	15	52	8	40	9	45

Educational establishments preferred UK, Nordic and Baltic countries

## Summary of Findings(6)

### Training (2)

Technical training was identified across all sectors and countries but general training needs were also specified, particular in the government sector.



## Summary of Findings(7)

### Training (3)

- Skills gaps were recognised (details have been provided):now by 19 respondents  
in 5 years by 26 respondents  
in 10 years by 9 respondents
- 4 areas of most common interest:  
radiological protection  
radiation dosimetry  
radiochemistry  
measurement and analysis
- Significant interest in radiobiology/radioecology in Scandinavian countries

## Summary of Findings(8)

### Research

- Over 75% respondents indicated that they undertook or supported research in the area of radiological protection

- 60% were involved in research training of students, of which 90% was at Masters or Doctorate level

Research support	Total	Gov	(%)	Ind	(%)	Res	(%)
Financially	23	15	52	3	15	4	21
In-house research	35	16	55	7	35	11	58
Provision of facilities	22	9	31	2	10	11	58
Projects/supervision	29	12	41	7	35	10	50

- Research facilities for students were identified across the whole of Europe
- Financial support more prevalent in Northern Europe

### Conclusions from WP2 (Employment)

- There is significant latent and future need for personnel trained at masters-level and beyond in the broad area of radiological protection;
- From questionnaire data, 30 Technical Advisors and 67 Professional Experts will be recruited per annum, and reports from the literature recommend higher numbers;
- Recruits are unlikely from traditional engineering routes, there is a need to 'nuclearise' programmes in engineering or environmental sciences;
- There is a ready market for nuclear-related Masters.

### Conclusions from WP2 (Training)

- Significant training in radiological protection is, and will be into the future, undertaken by stakeholders;
- 75% of training delivered outside the university sector but opportunities to build professional accreditation into formal qualifications;
- Curriculum content: radiochemistry, radiation protection, dosimetry and analytical techniques are commonly identified; environmental pathways, environmental impact and radioecology are also strongly indicated;
- It is not possible to specify particular laboratory or field needs except that measurement and analysis was highlighted.

## Conclusions from WP2 (Research)

- There are widespread opportunities across Europe for students to undertake nuclear-related projects and utilise specialist facilities;
- To date exchange of students or faculty members between European universities is rare and needs to be addressed for any co-ordinated programme;
- National demand for experts may be too small in some countries, therefore increased European co-operation is essential to maintain and enhance postgraduate education and research.