



Australian Government
Australian Research Council

Sofitel, Brisbane
29 April 2011

Higher Education Summit

***Driving Excellence in Research:
The Australian Research Landscape***

Professor Margaret Sheil
CEO, Australian Research Council

Research

Outline

- ERA overview
- Publishing behaviour
- University-wide data
- Discipline differences
- National innovation and research system
- Next steps

Objectives of ERA

- Establish an *evaluation framework*;
- Provide a *national stock take* of discipline-level research;
- Identify *excellence* across the full spectrum of research performance;
- Identify *emerging research areas* and *opportunities for further development*;
- Allow for *comparison* of Australia's research *nationally* and *internationally* for all discipline areas.



Overseas Quality Assessment Exercises

1986—The United Kingdom

1993—Hong Kong

1997—Germany

1998—Ireland

2002—The Netherlands

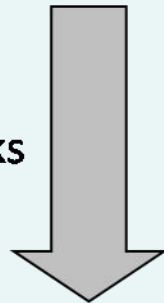
2003—New Zealand

2005—France

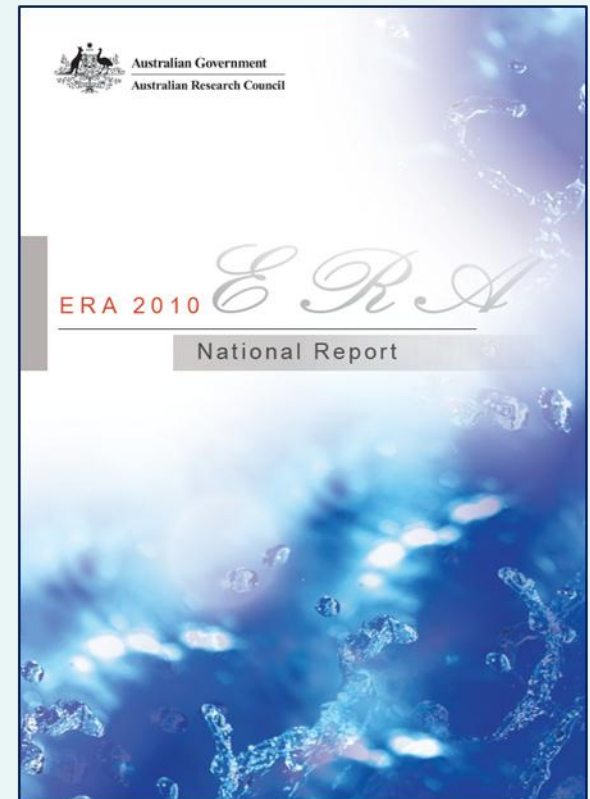
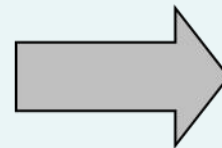
ERA Process Overview

Volume & Activity	Ranked Outlets
Citation Analysis	Esteem
Research Income	Applied Measures
Peer Review	

International Benchmarks



Research Evaluation
Committees



ERA Unit of Evaluation – the FoRs

19 Studies in Creative Arts and Writing

+ 1901 ART THEORY AND CRITICISM

+ 1902 FILM, TELEVISION AND DIGITAL MEDIA

+ 1903 JOURNALISM AND PROFESSIONAL WRITING

- 1904 PERFORMING ARTS AND CREATIVE WRITING

> 190401 Aboriginal and Torres Strait Islander Performing Arts

> 190402 Creative Writing (incl. Playwriting)

> 190403 Dance

> 190404 Drama, Theatre and Performance Studies

> 190405 Māori Performing Arts

> 190406 Music Composition

> 190407 Music Performance

> 190408 Music Therapy

> 190409 Musicology and Ethnomusicology

> 190410 Pacific Peoples Performing Arts

> 190499 Performing Arts and Creative Writing not elsewhere classified

+ 1905 VISUAL ARTS AND CRAFTS

+ 1999 OTHER STUDIES IN CREATIVE ARTS AND WRITING

2-digit

4-digit

6-digit

The ERA Unit is not the department nor the individual researcher

ERA 2010 at a Glance

- All 41 eligible institutions submitted data
- Over 330,000 research outputs and 55,000 researchers represented
- 2,435 units of evaluation assessed at the two- and four-digit level
- 149 Research Evaluation Committee (REC) members and 500+ Peer Reviewers contributed evaluations
- All aggregated data presented in the *ERA 2010 National Report*.

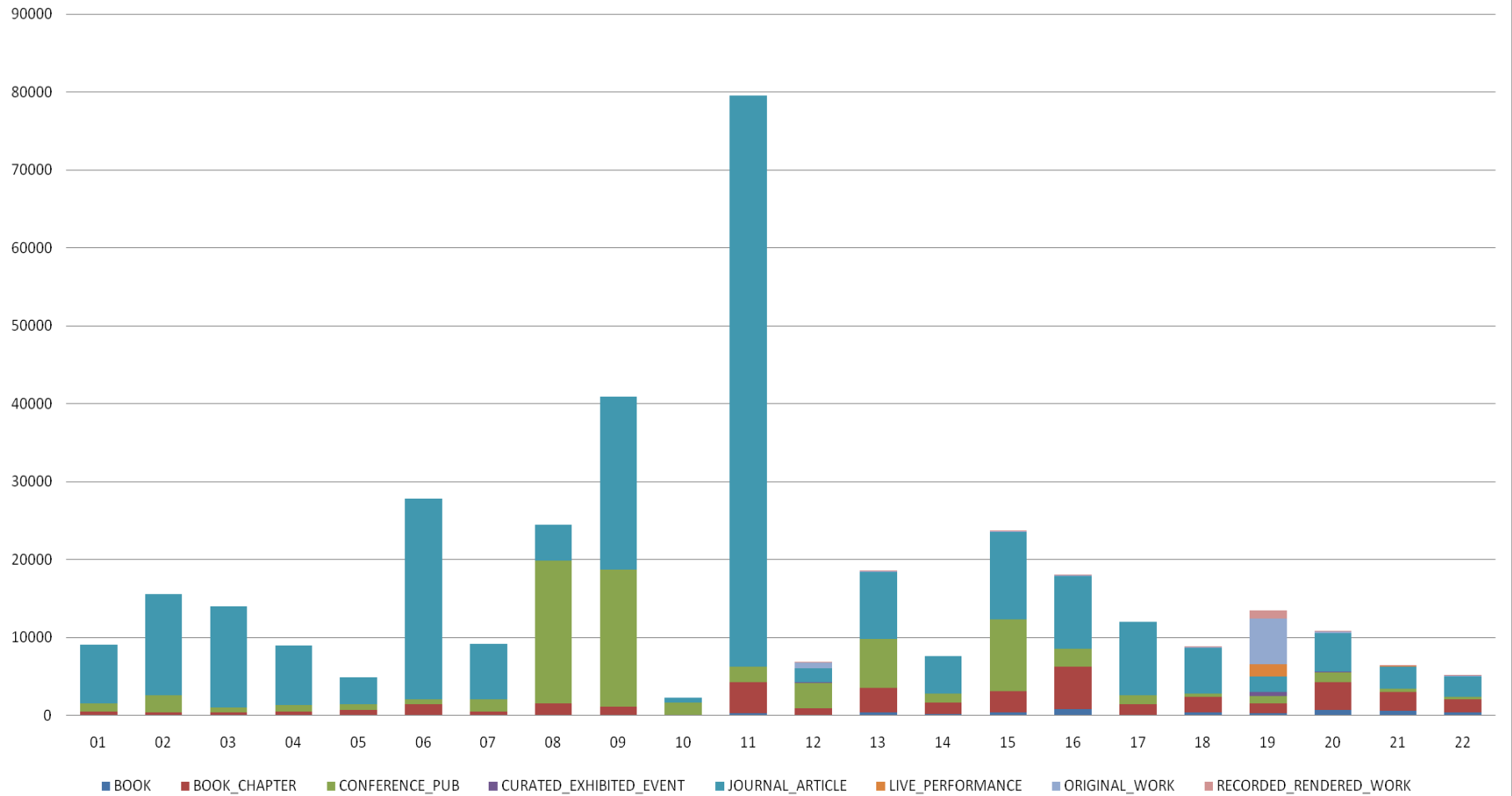
The ERA 2010 Rating Scale

Rating	Descriptor
5	The Unit of Evaluation profile is characterised by evidence of outstanding performance well above world standard presented by the suite of indicators used for evaluation.
4	The Unit of Evaluation profile is characterised by evidence of performance above world standard presented by the suite of indicators used for evaluation.
3	The Unit of Evaluation profile is characterised by evidence of average performance at world standard presented by the suite of indicators used for evaluation.
2	The Unit of Evaluation profile is characterised by evidence of performance below world standard presented by the suite of indicators used for evaluation.
1	The Unit of Evaluation profile is characterised by evidence of performance well below world standard presented by the suite of indicators used for evaluation.

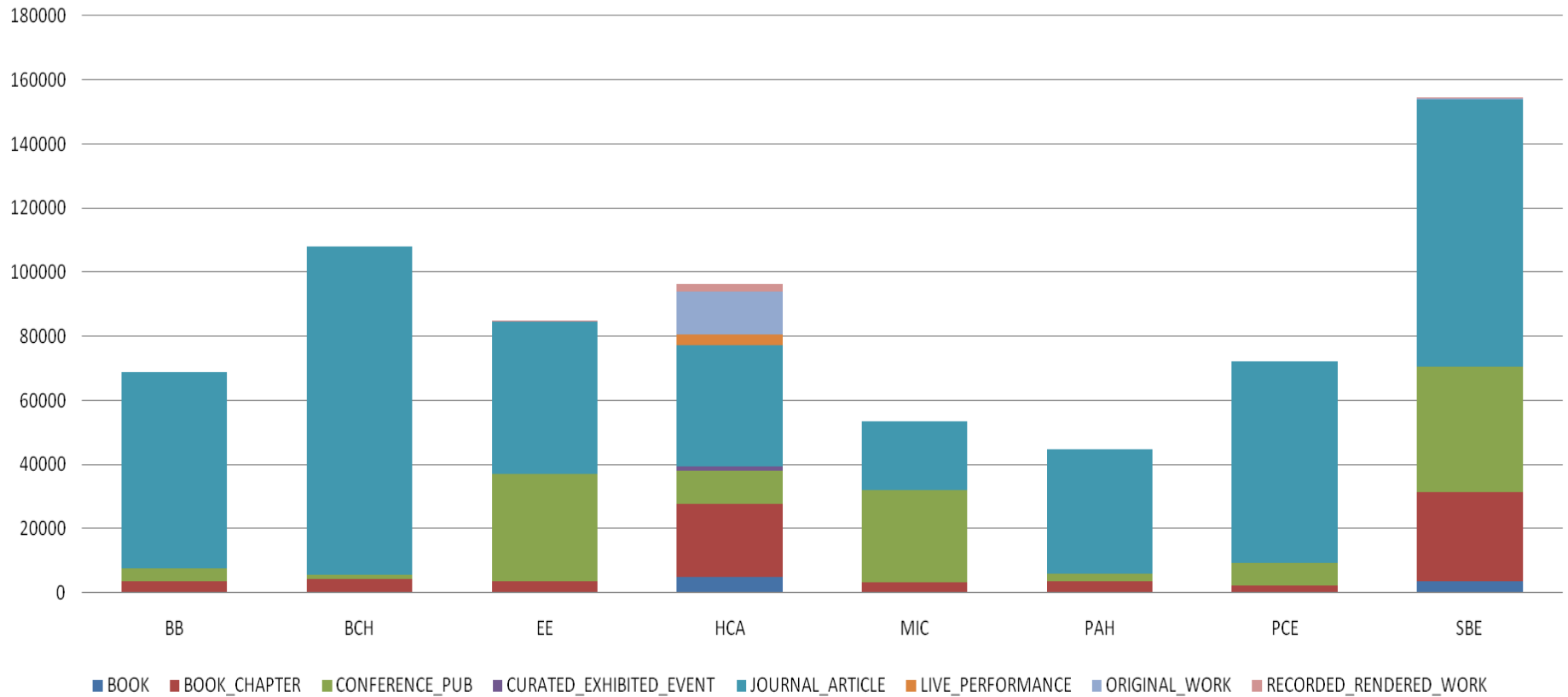
ERA 2010 at a Glance

- ✘ Averages and Rankings
- ✘ Sciences v. Social Sciences & Humanities
- ☑ ERA does *not* evaluate individuals
- ☑ ERA does *not* evaluate individual outputs
- ☑ Ranked Journals did *not* drive ERA ratings
- ☑ ERA involved experts evaluating metrics and results of peer review (in 56/157)
- ☑ Each discipline had its own set of indicators

Research Outputs by two-digit Field of Research (Jan. 2003 - Dec. 2008)



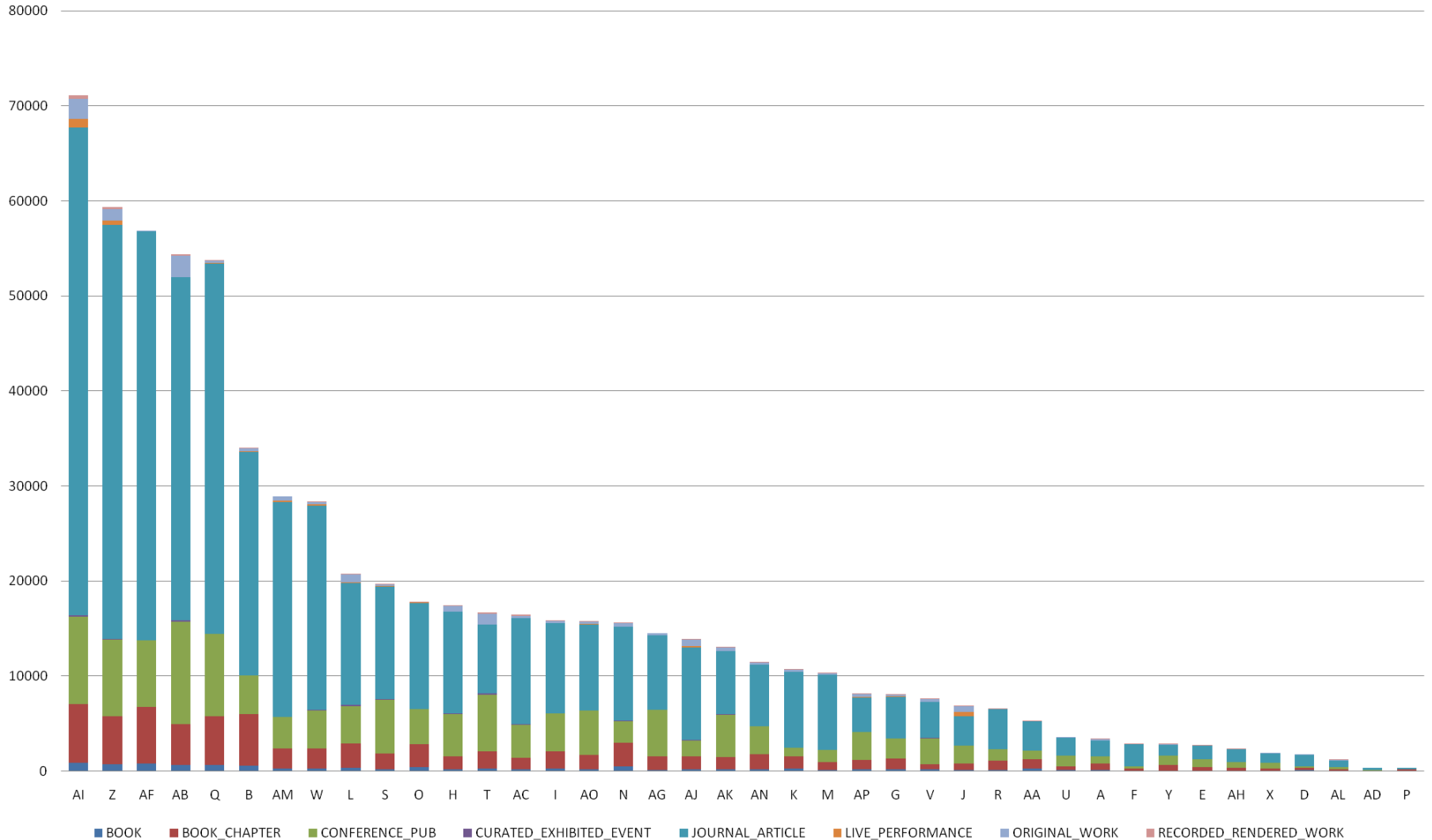
Research Outputs by Discipline Cluster (Jan. 2003 - Dec. 2008)



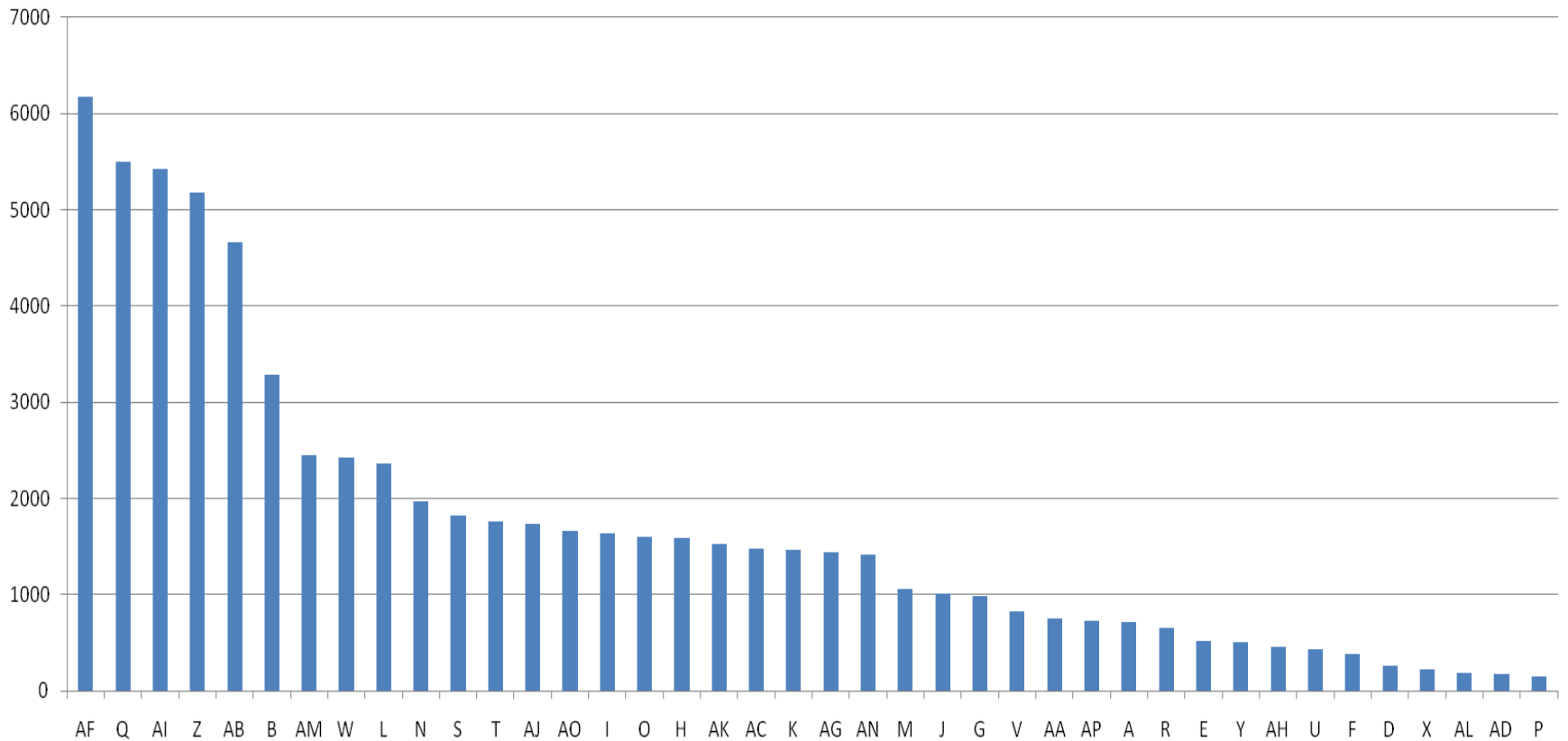
A/A* not the main driver

Discipline	FoR	A*	A	B	C
Immunology	1107	7%	14%	24%	55%
Plant Biology	0607	3%	8%	14%	74%
Ecology	0602	9%	18%	36%	37%
Zoology	0608	1%	7%	18%	73%
Historical Studies	2103	6%	22%	32%	38%
Electrical and Electronic Engineering	0906	6%	16%	28%	49%
Macromolecular and Materials Chemistry	0303	14%	19%	31%	36%

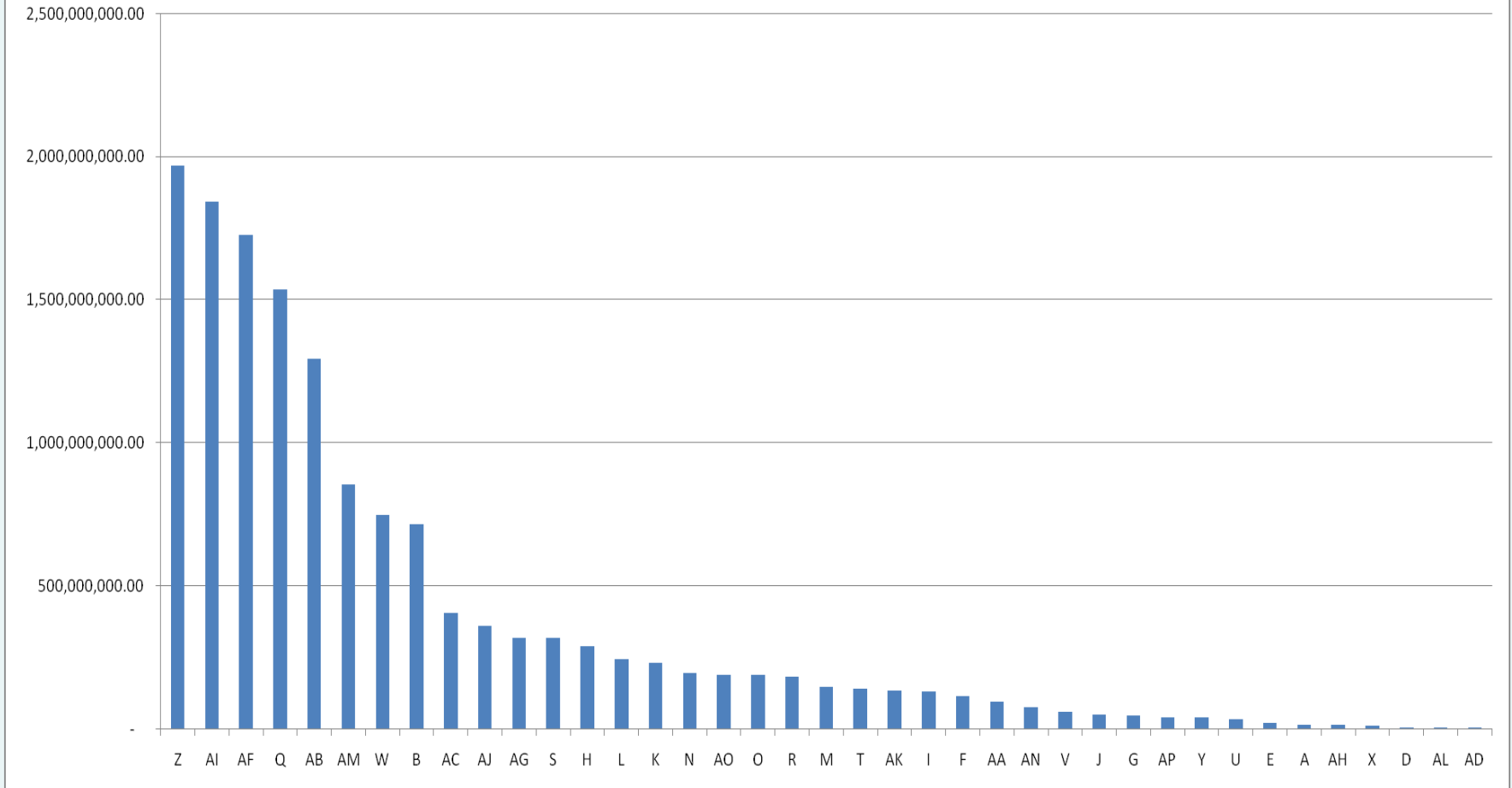
Research Outputs by Institution (Jan. 2003 - Dec. 2008)



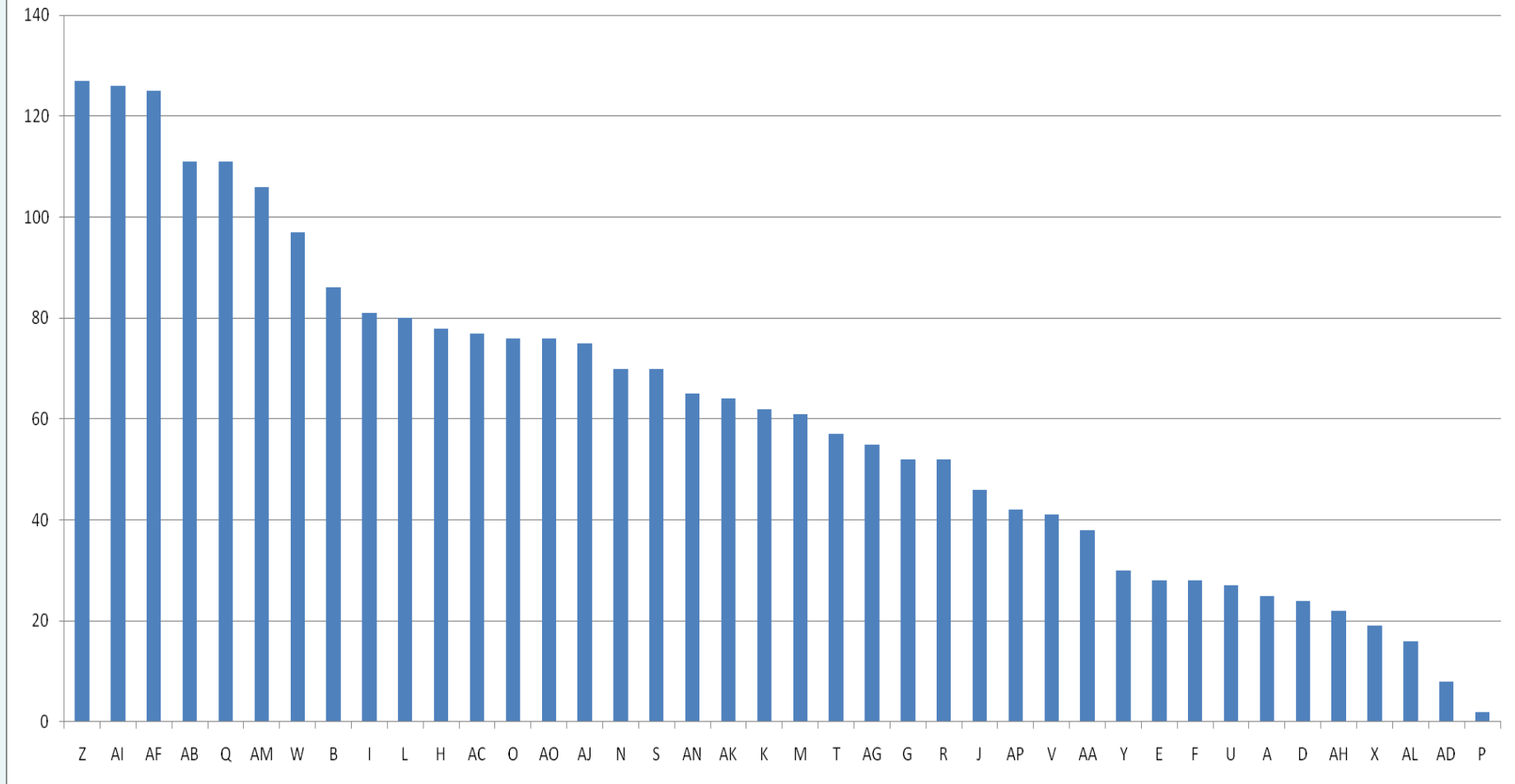
FTE by institution (as at 31 March 2009)

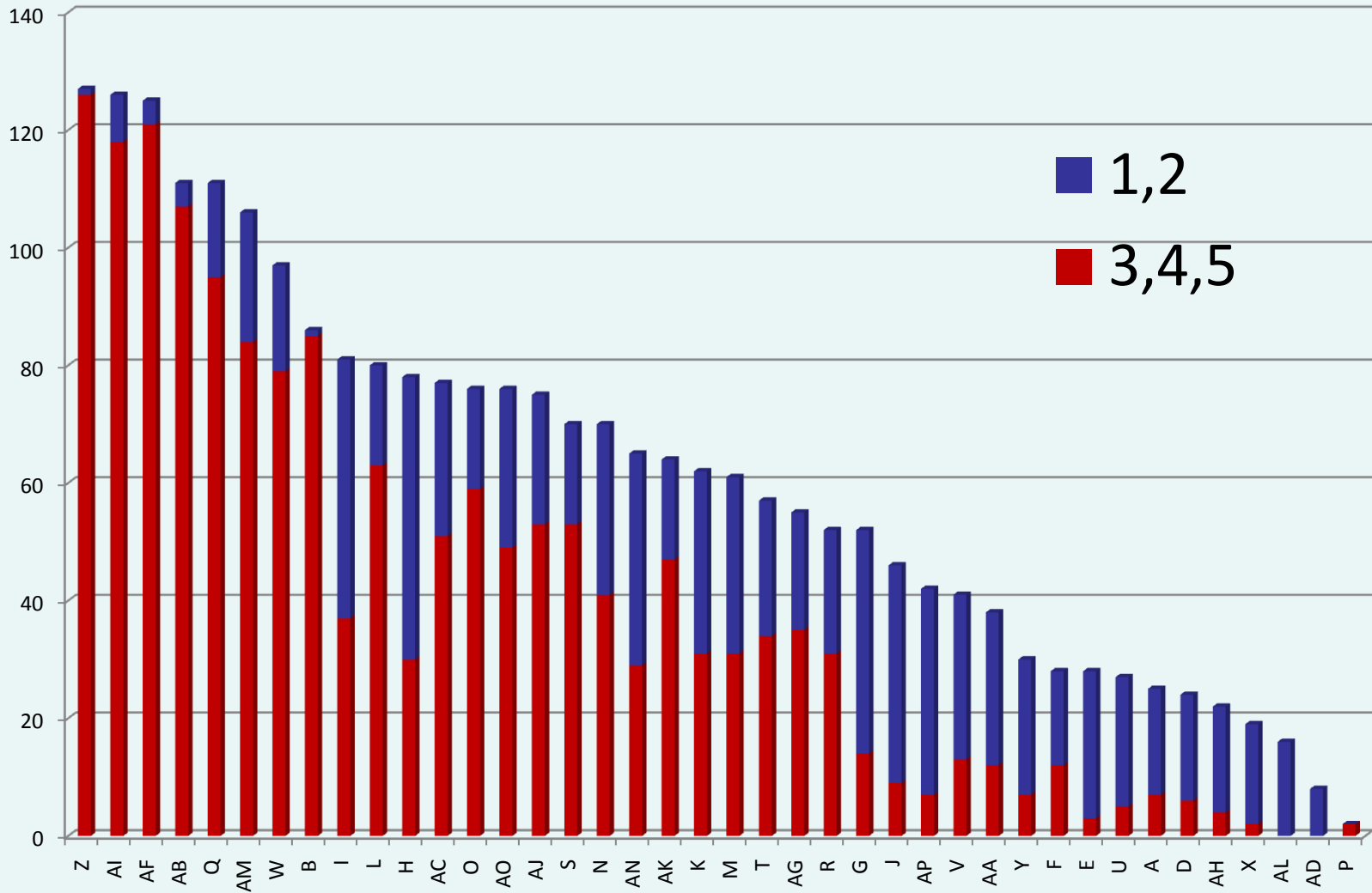


Research income by institution (Jan. 2006 - Dec. 2008)



Units of Evaluation by institution

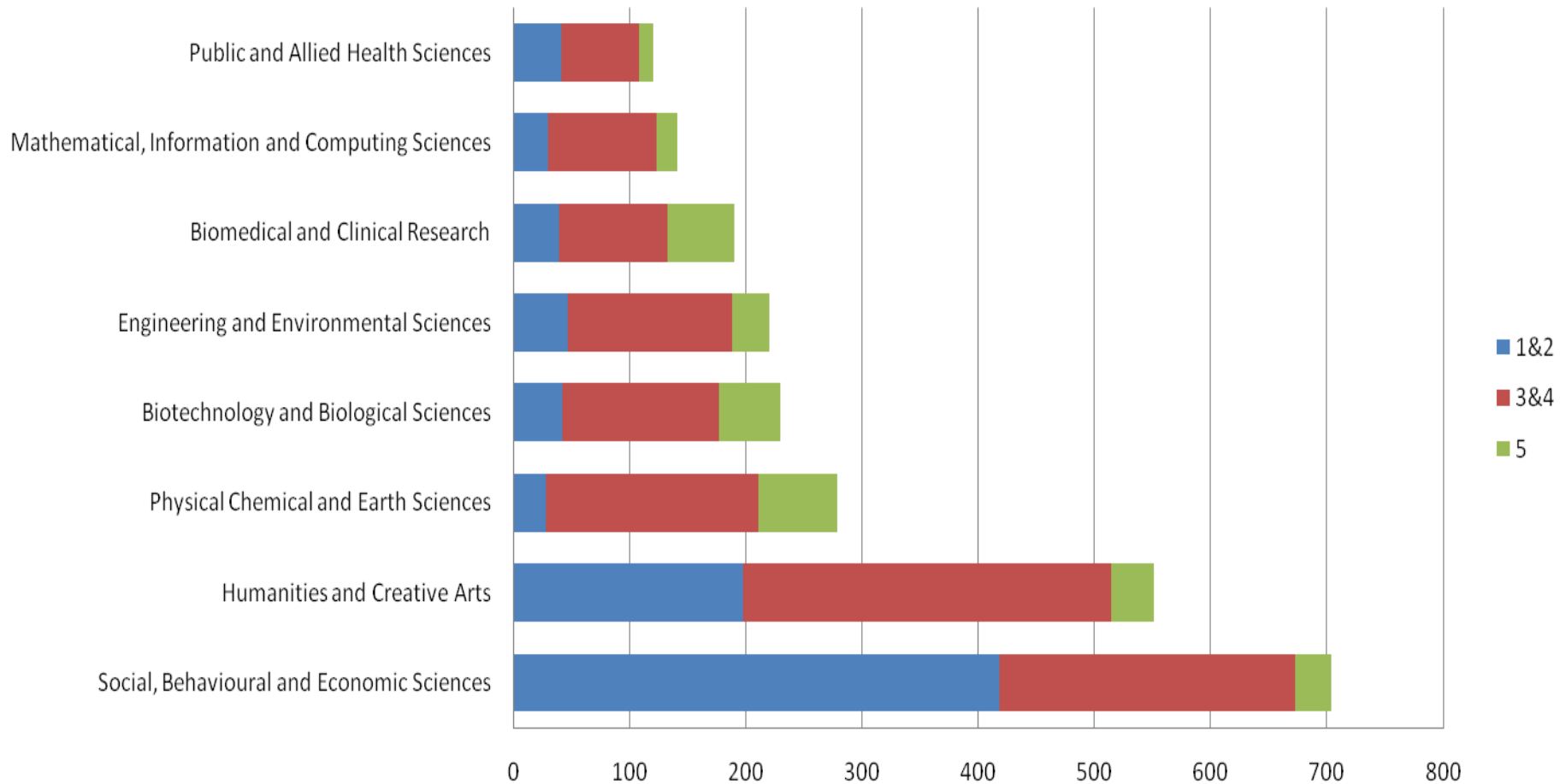




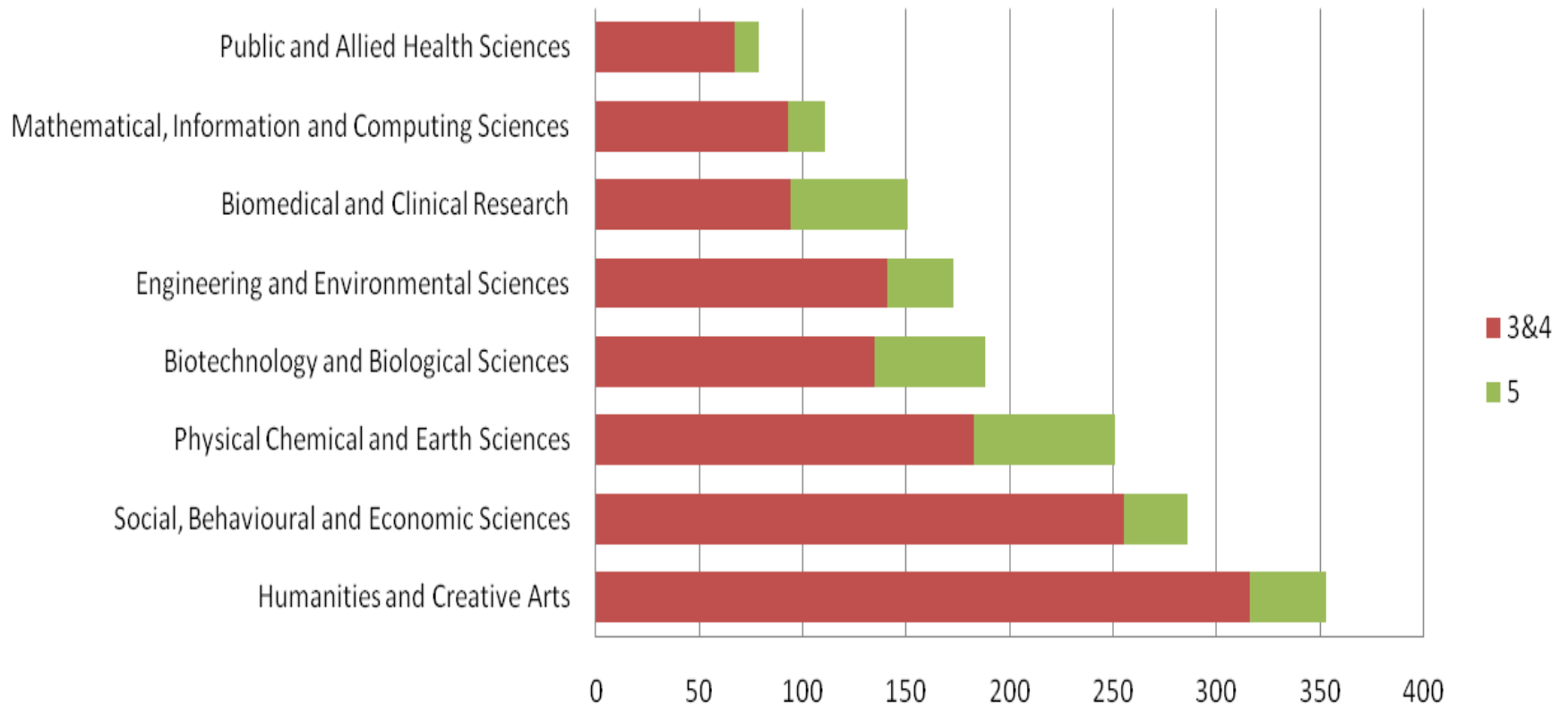
The ERA Clusters

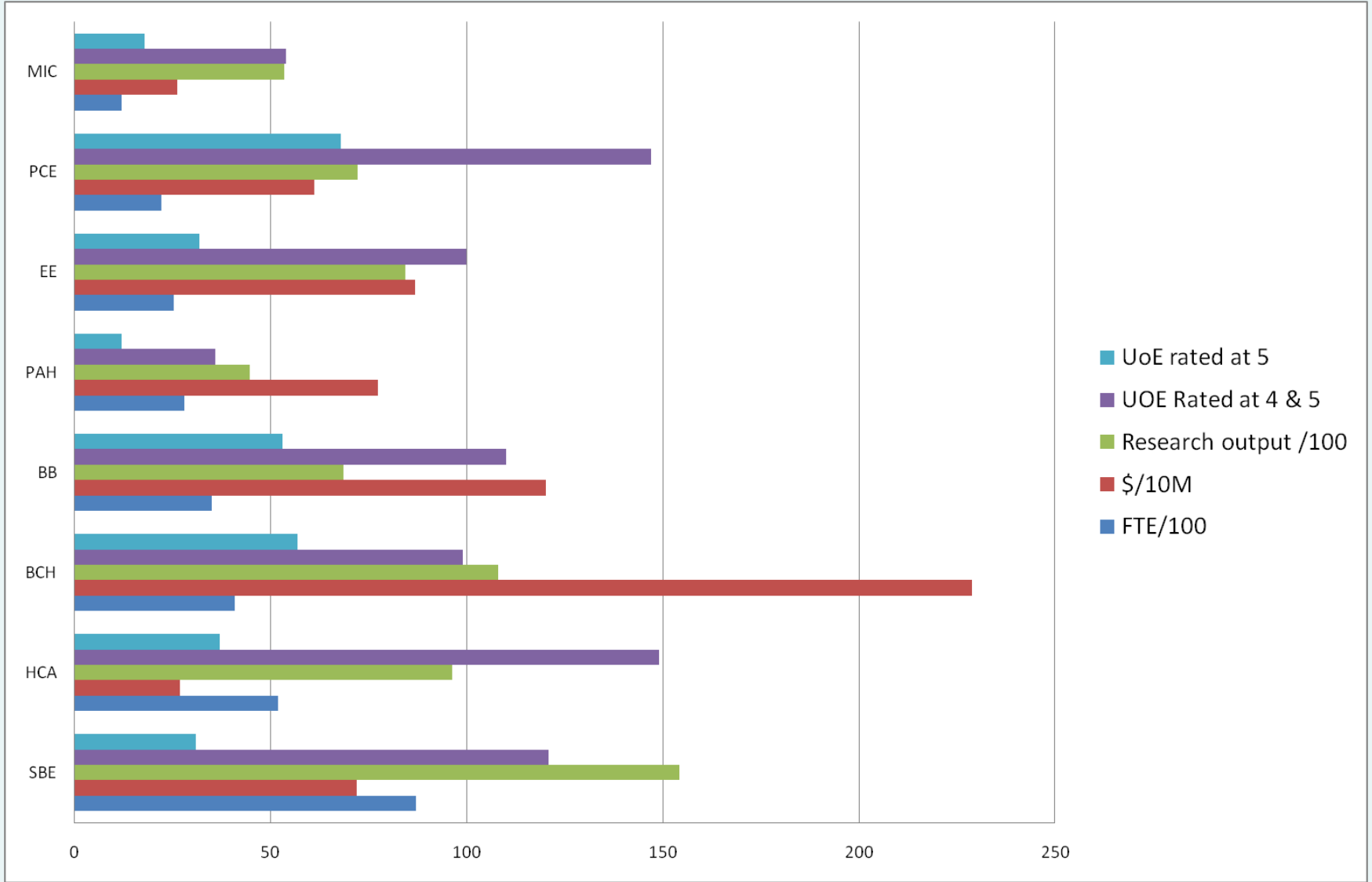
Cluster 1	Physical, Chemical & Earth Sciences
Cluster 2	Humanities and Creative Arts
Cluster 3	Engineering and Environmental Sciences
Cluster 4	Social, Behavioural and Economic Sciences
Cluster 5	Mathematics, Information and Computing Sciences
Cluster 6	Biological and Biotechnological Sciences
Cluster 7	Biomedical and Clinical Health Sciences
Cluster 8	Public and Allied Health Sciences

ERA 2010 Ratings by Cluster



ERA 2010 Rating by Cluster - at, above, or well above world standard (i.e. 3s, 4s, & 5s)





Strengths in Australian Universities

- Astronomical and Space Sciences
- Optical Physics
- Quantum Physics
- Macromolecular & Materials Chemistry
- Physical & Structural Chemistry
- Geology
- Ecology
- Evolutionary Biology
- Plant Biology
- Zoology
- Clinical Sciences
- Electrical and Electronic Engineering
- Historical Studies
- Cardiovascular Medicine and Haematology
- Human Movement and Sports Science
- Immunology
- Oncology and Carcinogenesis
- Pharmacology and Pharmaceutical Sciences
- Medical Physiology

Gaps

- Agriculture, Land and Farm Management
- Automotive Engineering
- Maritime Engineering
- Engineering Design
- Complementary and Alternative Medicine

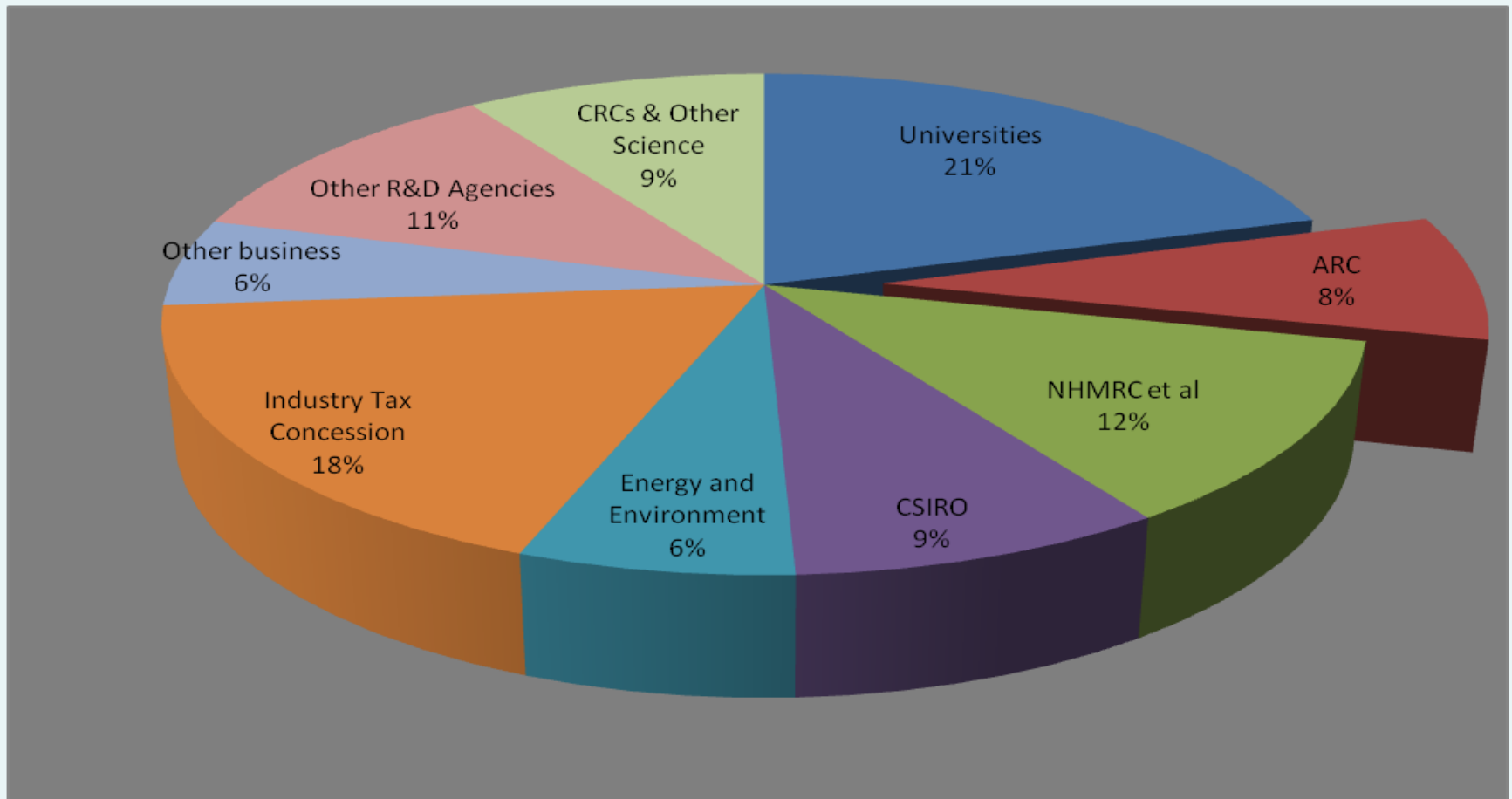
Pockets

- Classical Physics
- Aerospace Engineering
- Transportation and Freight

Strong Applied Research

- Electrical and Electronic Engineering
- Crop and Pasture Protection
- Resources Engineering
- Materials Engineering
- Extractive Metallurgy
- Nursing

Government Investment in Research 2010-11



For CSIRO's "Top 10" Fields: Scientific Articles Output

CSIRO is in the Top 10 global institutions (by total citations), for 3 of its research fields

In each of these, CSIRO's output of articles is 13 – 20% of total Australian articles

Environment/Ecology

CSIRO = 16.4% of AU articles

CSIRO = 0.83% of WO articles

% Australian Article 20%

Plant and Animal Science

CSIRO = 13.5% of AU articles

CSIRO = 0.66% of WO articles

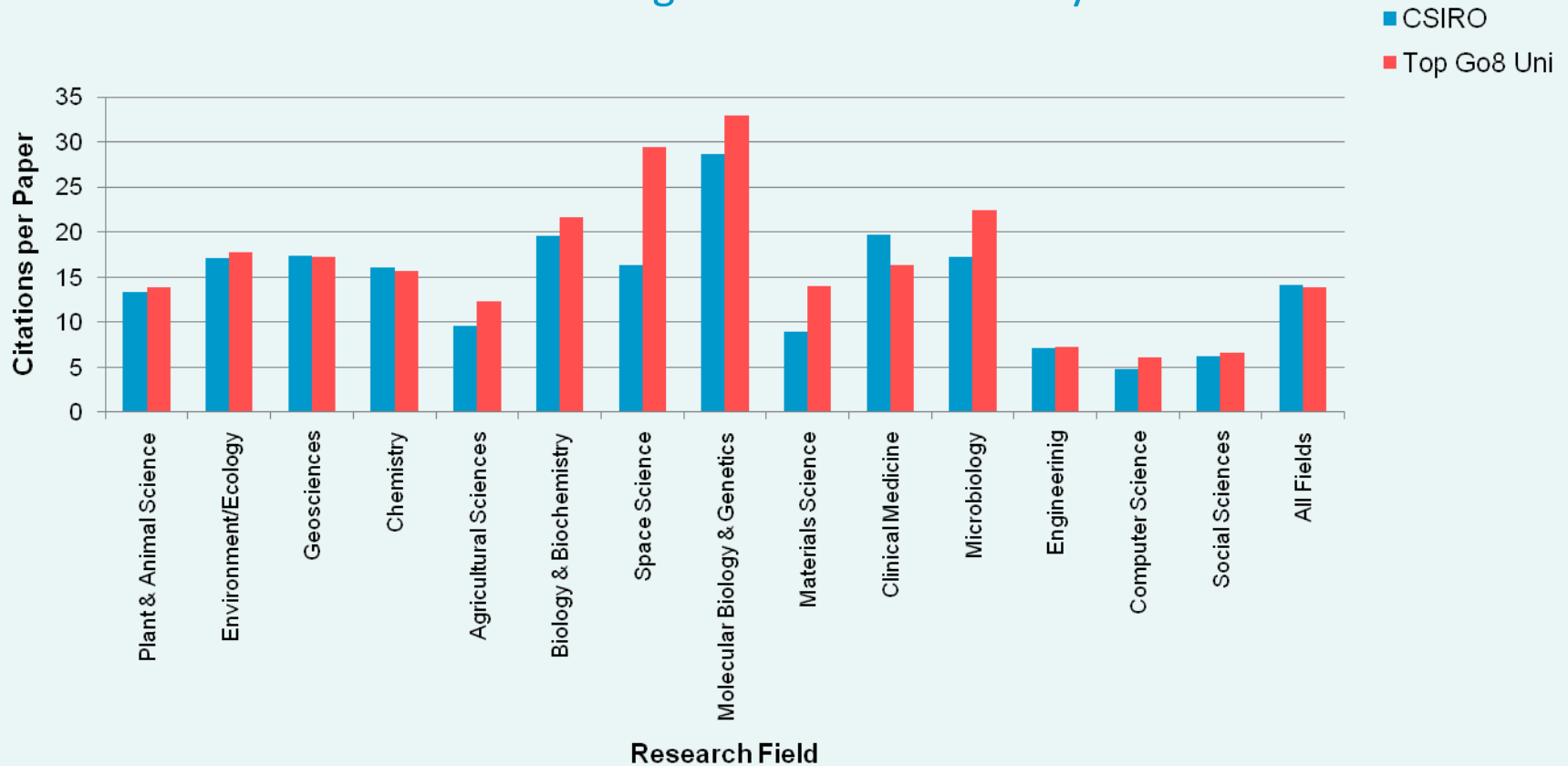
Agricultural Sciences

CSIRO = 20.5% of AU articles

CSIRO = 0.82% of WO articles

Comparison of CSIRO to Australia's Leading Universities - Citations per Paper

For CSIRO's main research fields, its citation rate runs (in most cases) at a similar rate to whichever is the leading Australian university for that field.



ERA 2010 Reviews for ERA 2012

Targeted Reviews

- Ranked Outlets
- Research Evaluation Committees (REC) process
- Applied Indicators
- ERA Submission Guidelines

Broad Feedback

- Low volume thresholds (plus outputs that contribute)
- FORs allocated to clusters
- Indicator matrix for each discipline
- Definitions/timeframes:
reference periods and researcher eligibility

Summary

- ERA is *one* source of information at *one* point in time
- Important to maintain behaviours that are driven by international norms for your disciplines
- ERA can guide future policy at the national level
- We are reviewing all your feedback!!