



Australian Government

Australian Research Council

*Brisbane Convention and Exhibition Centre
18 May 2011*

Cooperative Research Centres Association

***ERA Roundtable:
Something for Everyone***

Professor Margaret Sheil

CEO, Australian Research Council

Research

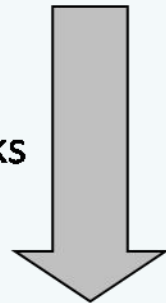
Objectives of ERA

- 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.

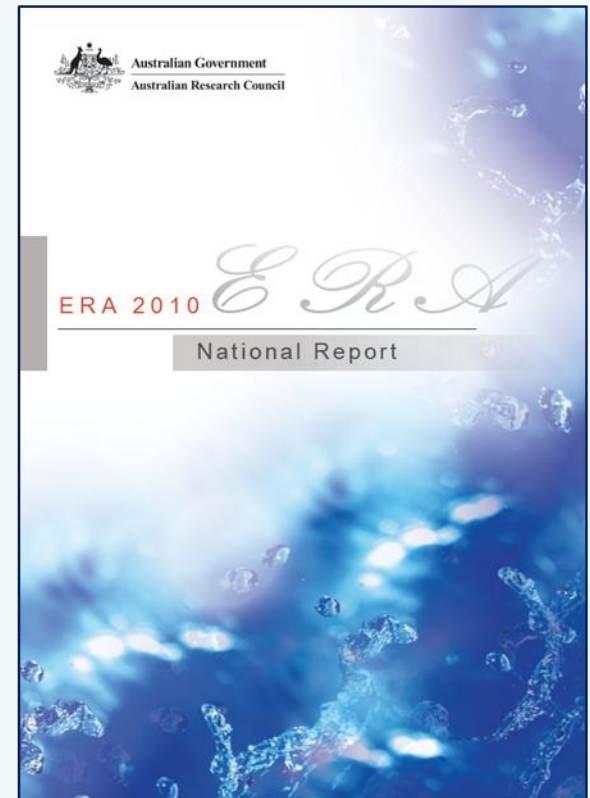
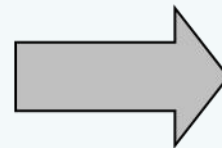
ERA Process Overview

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

International Benchmarks



Research Evaluation
Committees





**ERA approach =
one size does NOT fit all**

Why a matrix approach to indicators?

- Not all indicators are suitable for all disciplines
- Pick and choose what is right for each discipline
- The indicator suite must ensure comparable quality across a range of indicator types
- Journal Rankings are not THE indicator

Examples of the matrix of applied-research disciplines

ENGINEERING & ENVIRONMENTAL SCIENCES

Electrical and Electronic Engineering (0906)

- Citation Analysis
- Ranked Journals only
- Patents
- Research Commercialisation Income

Resources Engineering and Extractive Metallurgy (0914) and Materials Engineering (0912)

- Citation Analysis
- Ranked Journals *AND* Conferences
- Patents and Research Commercialisation Income

BIOLOGICAL SCIENCES & BIOTECHNOLOGY

Crop and Pasture Protection (0703)

- Citation Analysis
- Ranked Journals only
- Patents and Research Commercialisation Income
- Plant Breeder's Rights

PUBLIC & ALLIED HEALTH SCIENCES

Nursing (1110)

- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> Citation Analysis | <input checked="" type="checkbox"/> Membership of a Statutory Committee | <input checked="" type="checkbox"/> NHMRC-Endorsed Guidelines |
| <input checked="" type="checkbox"/> Ranked Journals | <input checked="" type="checkbox"/> Patents | |

Scale of ERA 2010

- 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*.

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 do *not* drive ERA ratings
- ☑ ERA evaluations utilised metrics and peer review moderated by expert judgement

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.

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

Reading the national results

86% of assessed UoEs received a rating at or above world standard (i.e. rating of 3 or above).

Of all assessed UoEs at the four-digit FoR code level (58 UoEs), the average rating is 3.4. See **Section 1** for two-digit FoR code average rating.

Mathematical, Information and Computing Sciences							
01 Mathematical Sciences							
% assessed UoEs rated at or above world standard 86%	FTEs	880	Esteem count(s)			106	Average National Rating 3.4
	Research outputs	8,659	Patent(s)			1	
	Research income \$	104,624,740	Research commer. income \$			22,368,469	
	UoEs assessed	58					
	Rating:	1	2	3	4	5	Total
	Distribution:	1	7	25	16	9	58

There were seven UoEs which received a rating of 2.

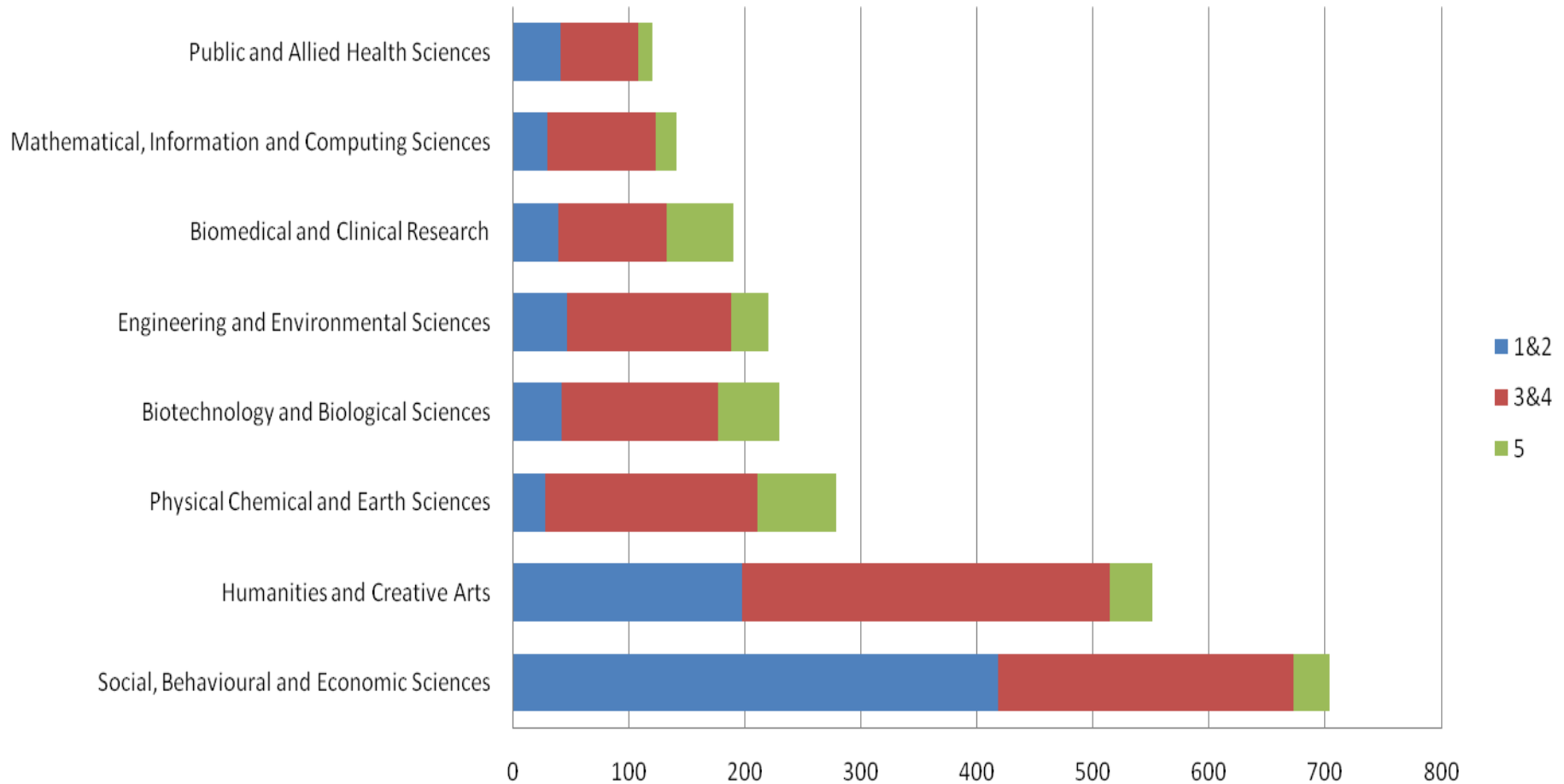
A total of 58 UoEs were assessed for Mathematical Sciences at the four-digit FoR code level.

Where is the best place to publish?

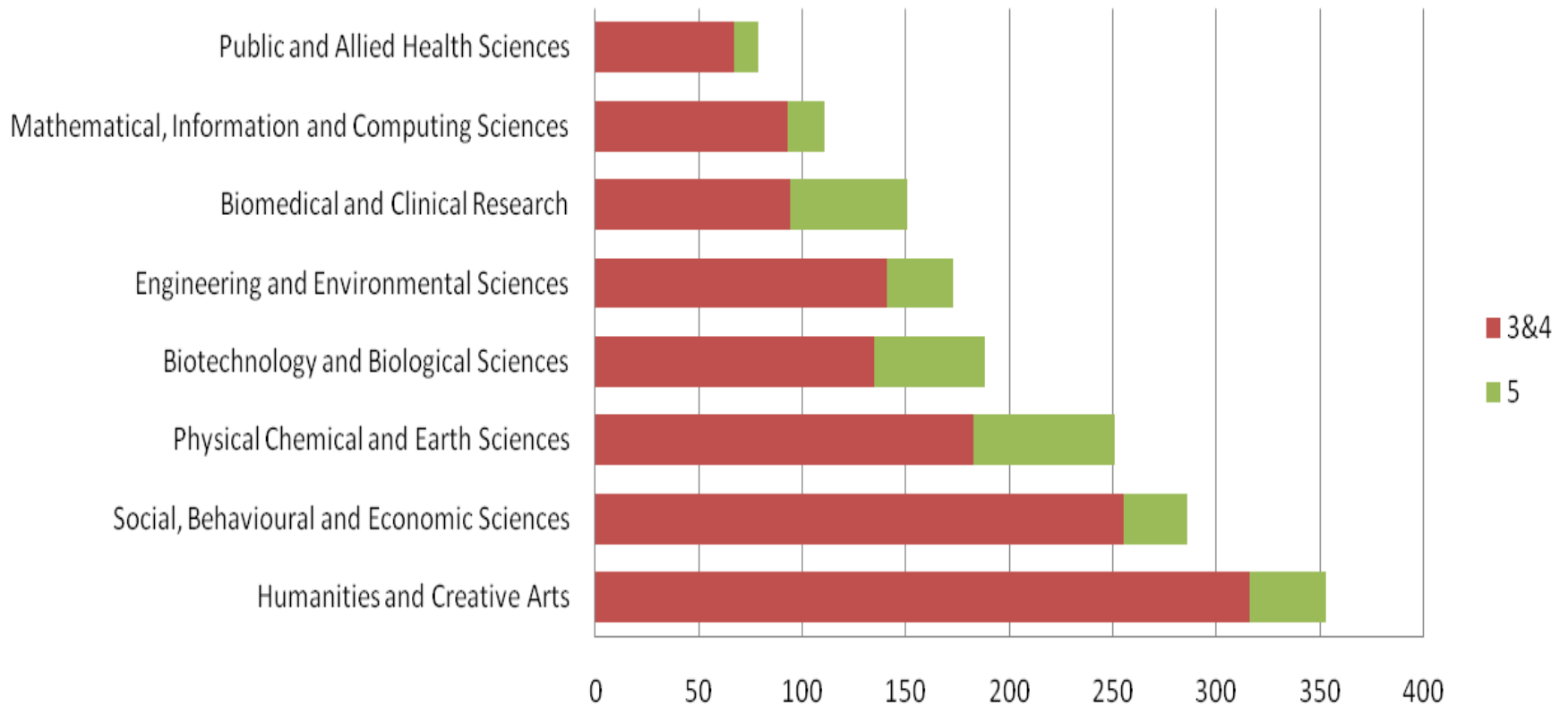
Where your research will receive the most appropriate exposure!

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%

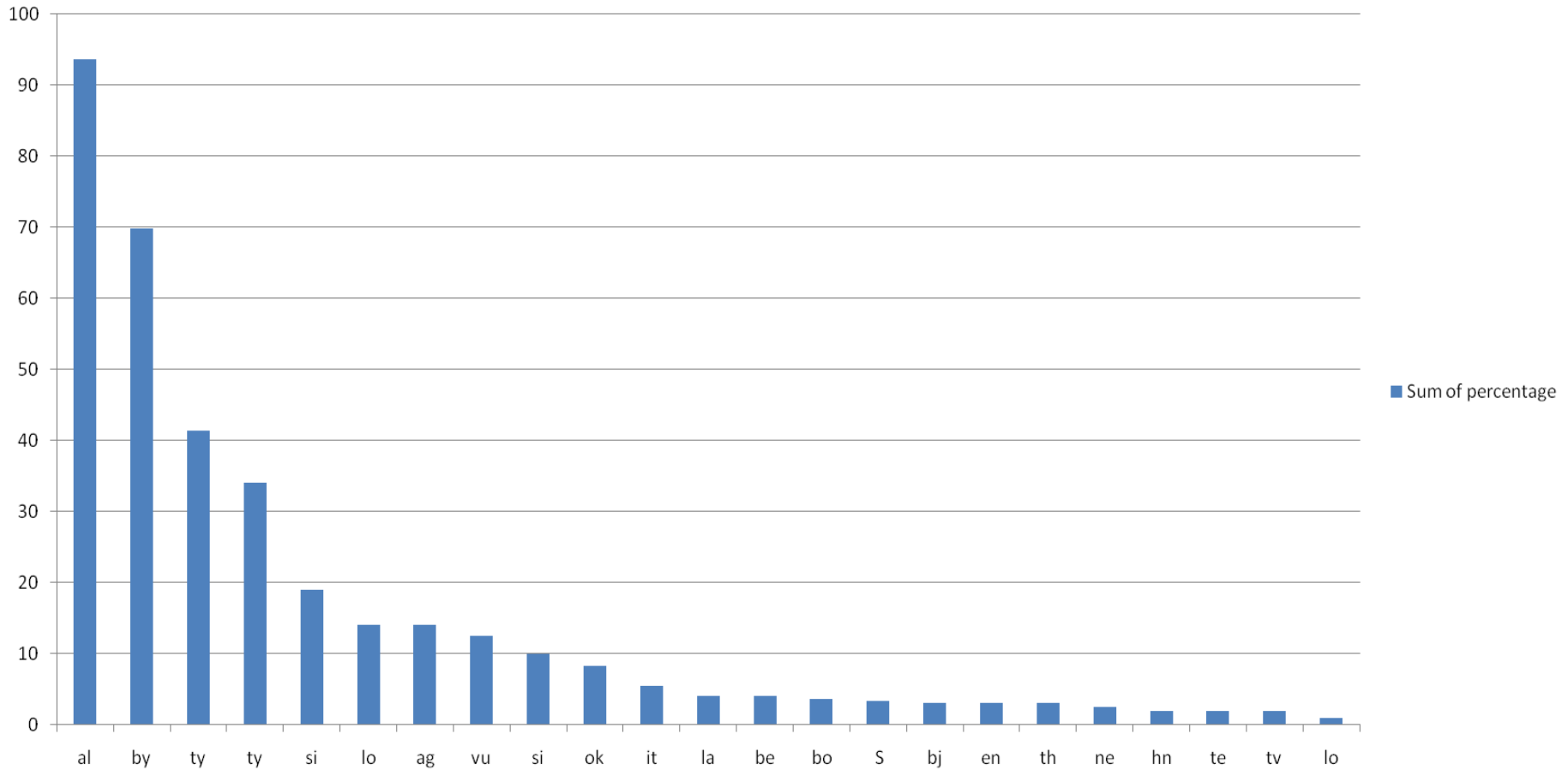
ERA 2010 Ratings by Cluster



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



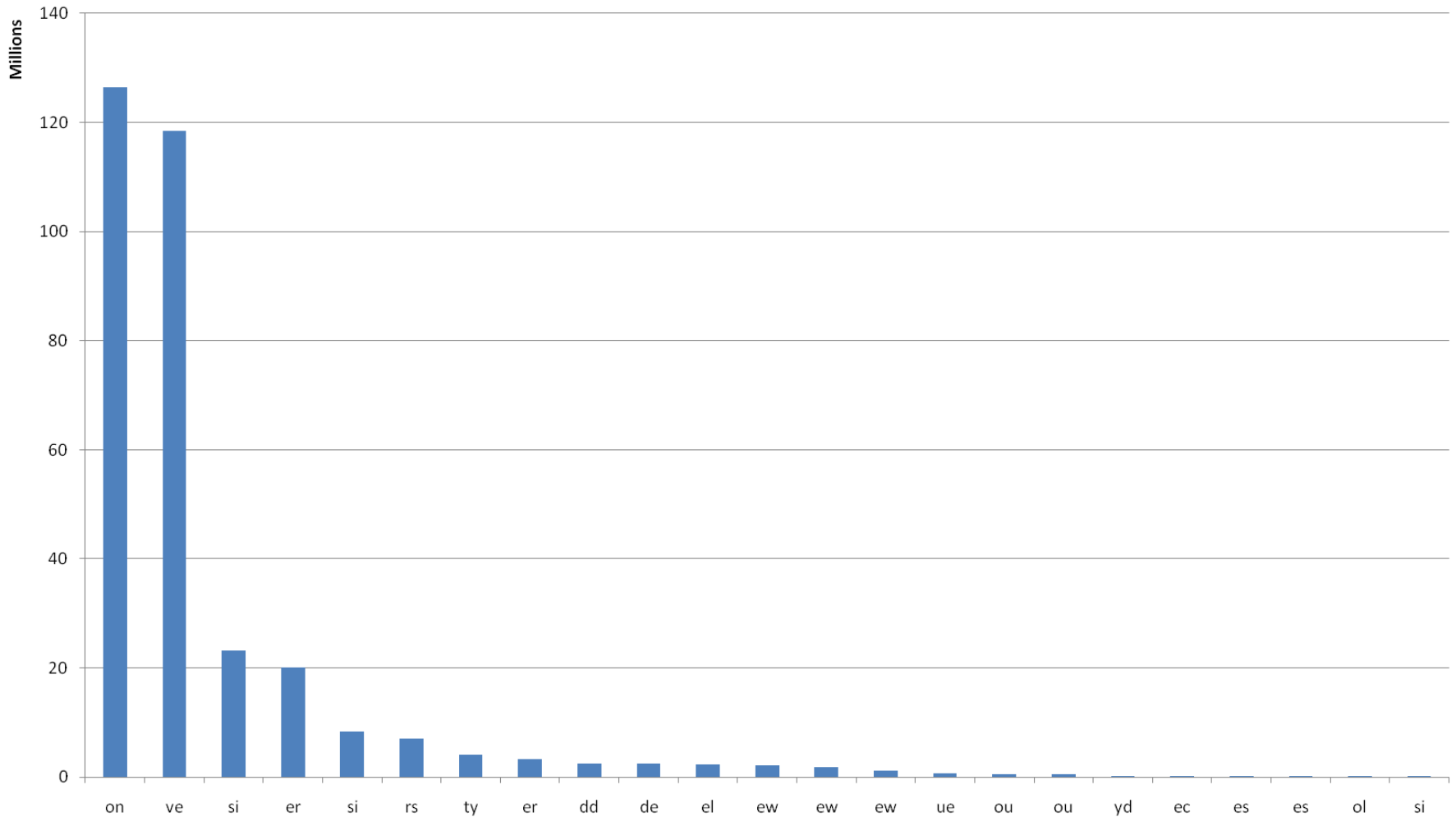
Patent family (2006-2008) by de-identified institution



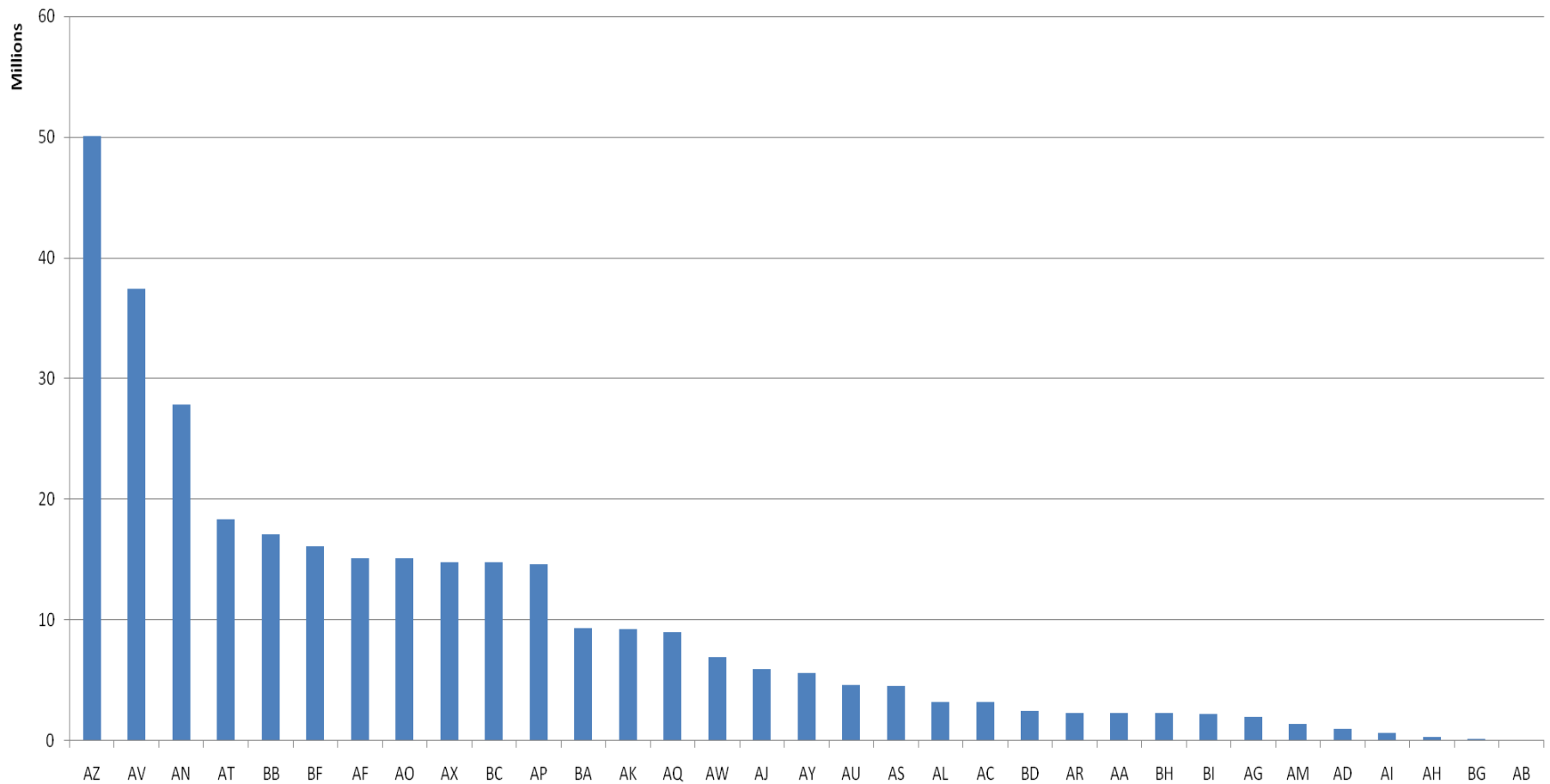
* Some letter combinations used for the de-identified institutions may be repeated within a graph, even though they represent different institutions.

** The Sum of percentage is the sum of the apportioned count (not whole count).

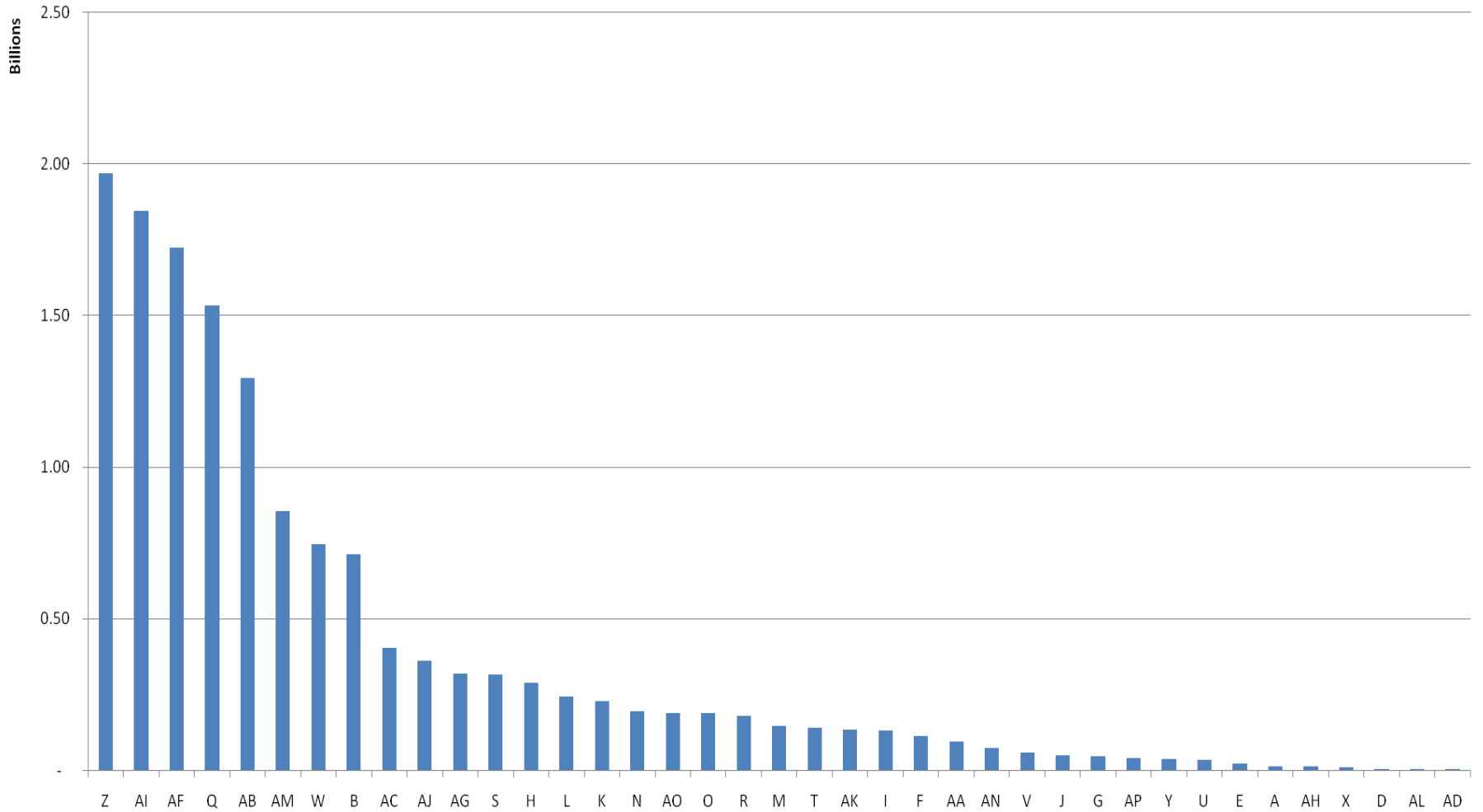
Research Commercialisation income (2006-2008) by de-identified institution



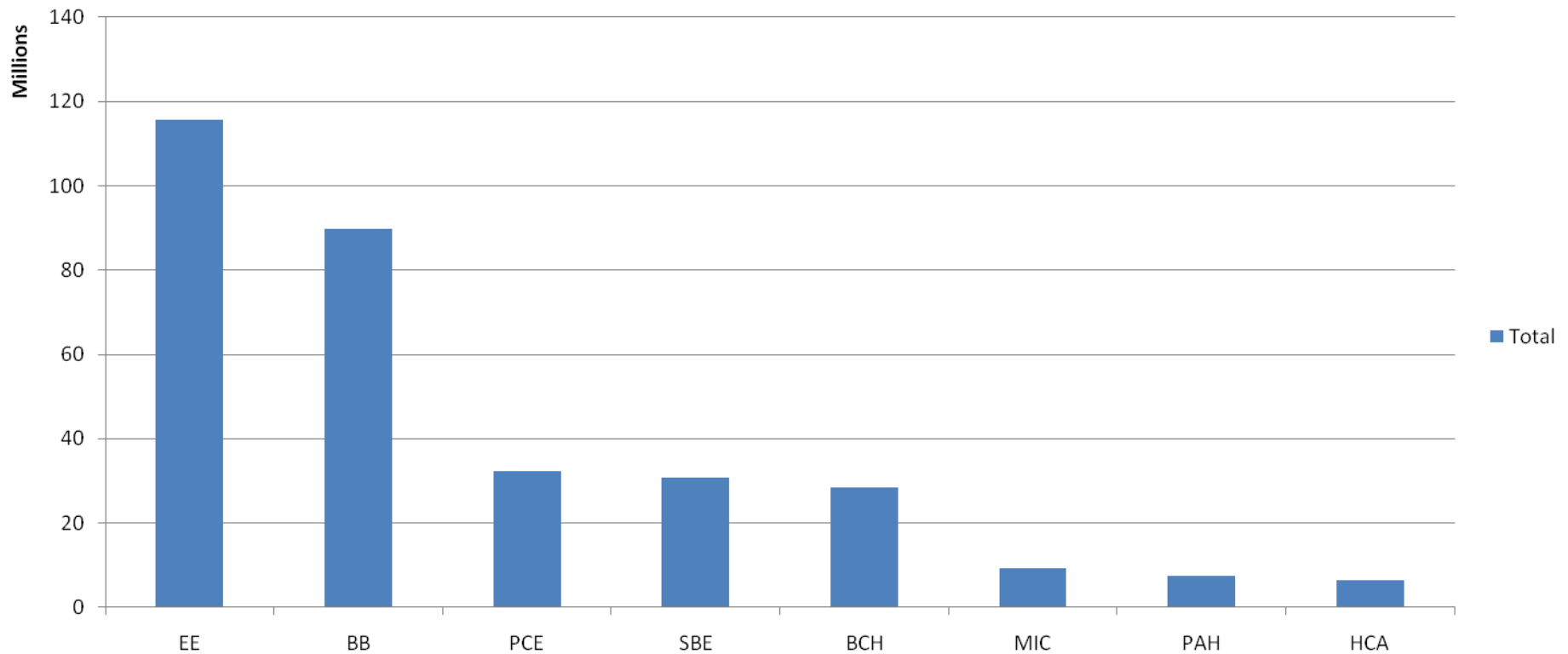
Cooperative Research Centre income (HERDC Cat. 4) (2006-2008) by de-identified institution



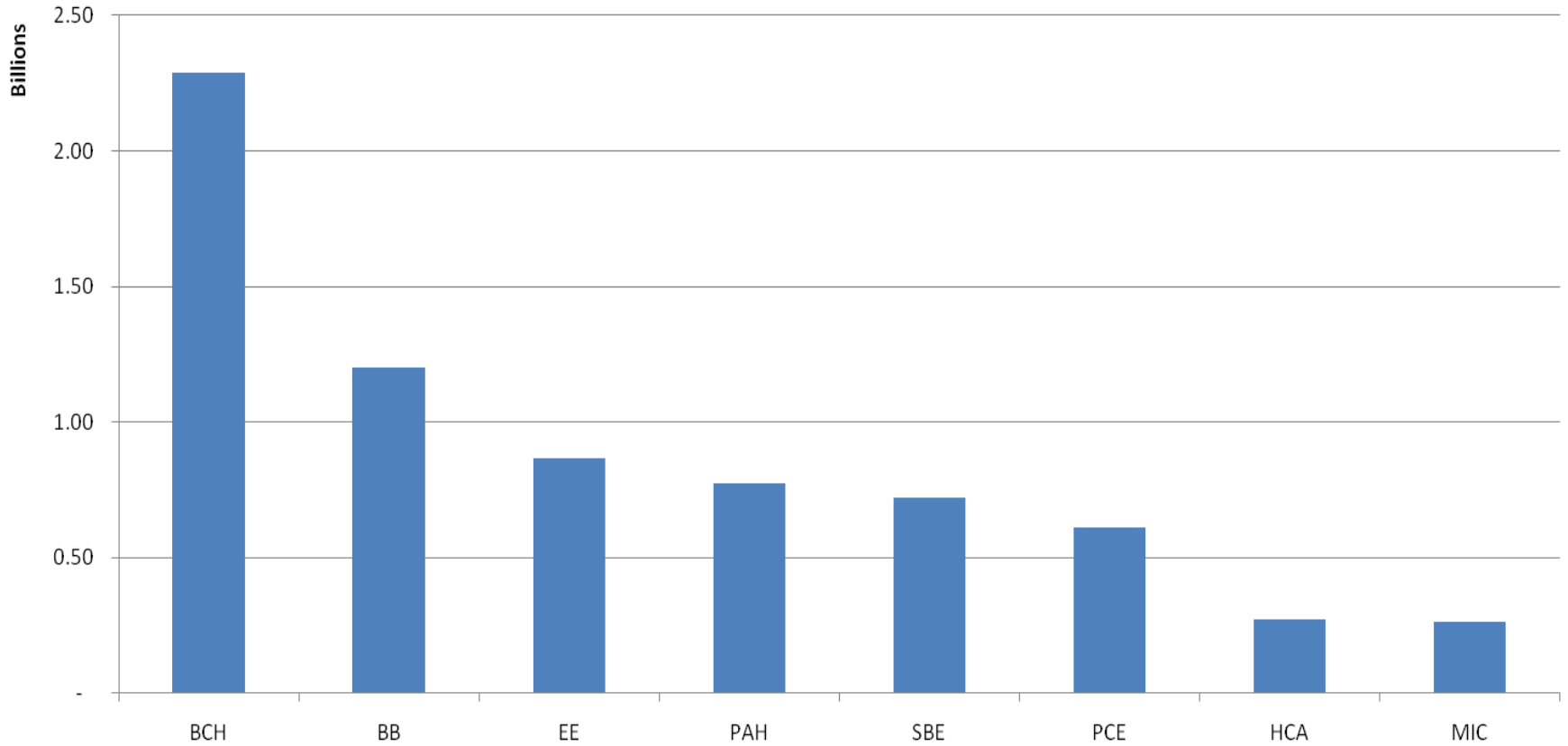
Research Income by de-identified institution (2006-2008)



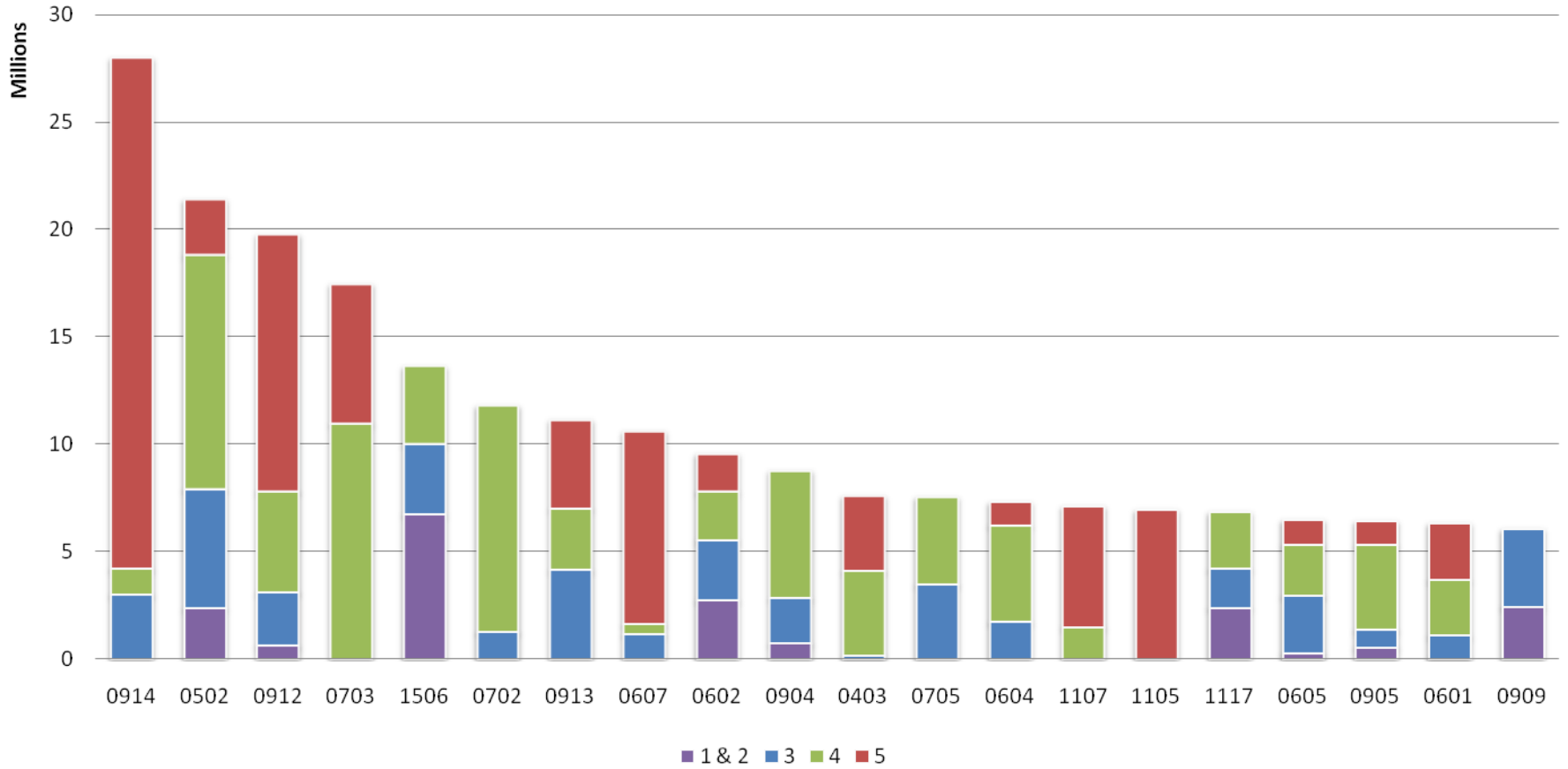
Cooperative Research Centre income (HERDC Cat. 4) by ERA cluster (2006-2008)



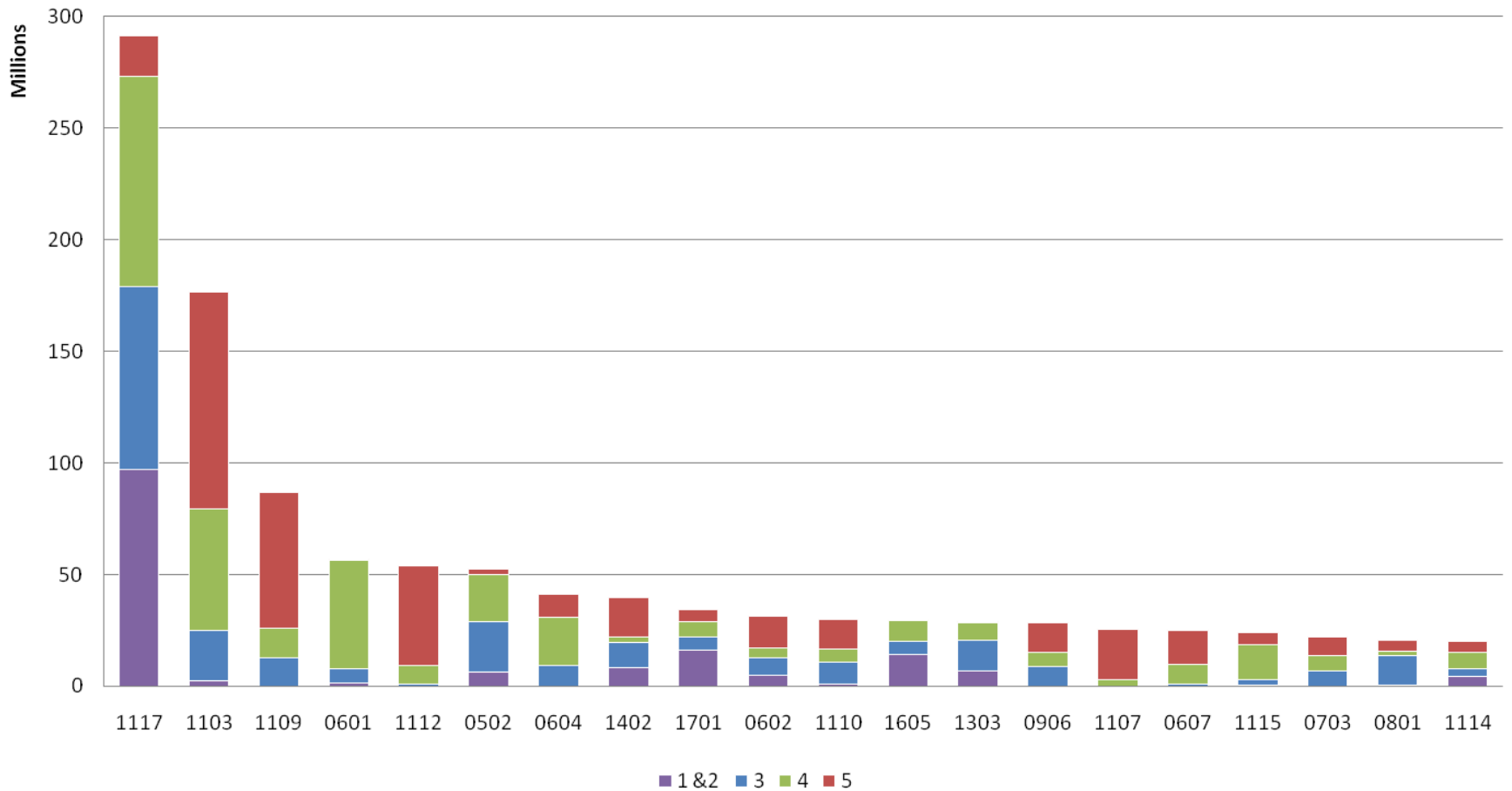
Research income by discipline cluster (2006-2008)



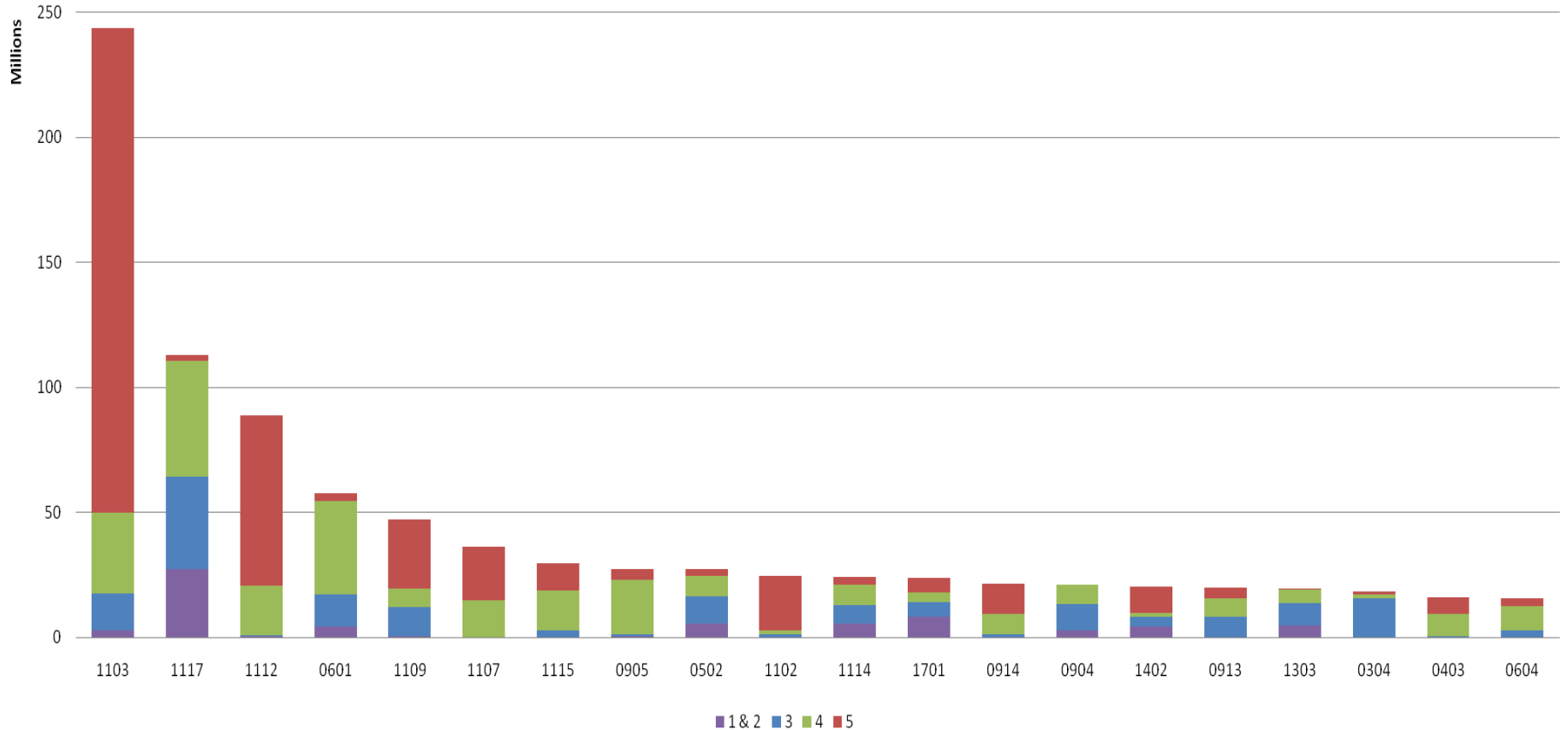
Top 20 CRC income disciplines (2006-2008) and ERA 2010 rating



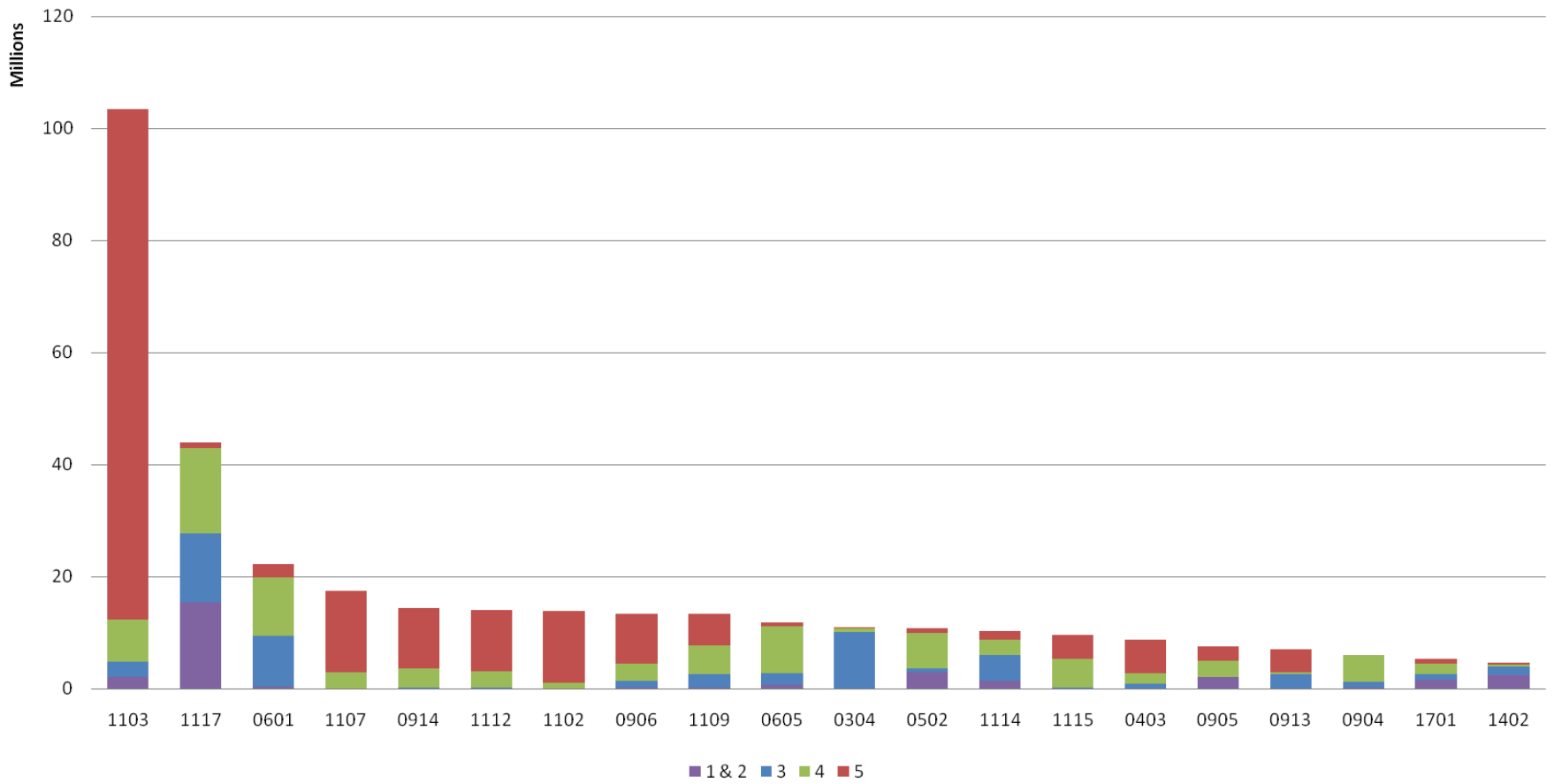
Top 20 Category 2 income disciplines (2006-2008) and ERA 2010 rating



**Top 20 Category 3 (Australian) income disciplines (2006-2008)
and ERA 2010 rating**



**Top 20 Category 3 (International A & B) income disciplines (2006-2008)
and ERA 2010 rating**



Summary

- Many examples of units of evaluation with high levels of CRC income that performed above world standard.
- More detailed mapping would be required to trace the precise impact of individual CRCs.
- Many areas of interest to end-users have performed strongly in ERA.
- End-users are also focused on quality.