Australian Government

Department of Industry, Innovation, Science, Research and Tertiary Education

Strategic research cooperation with the EU – perspective from an advanced non-member economy

Martin Gallagher

Association de valorisation des relations internationales scientifiques et techniques, Paris

23 November 2012

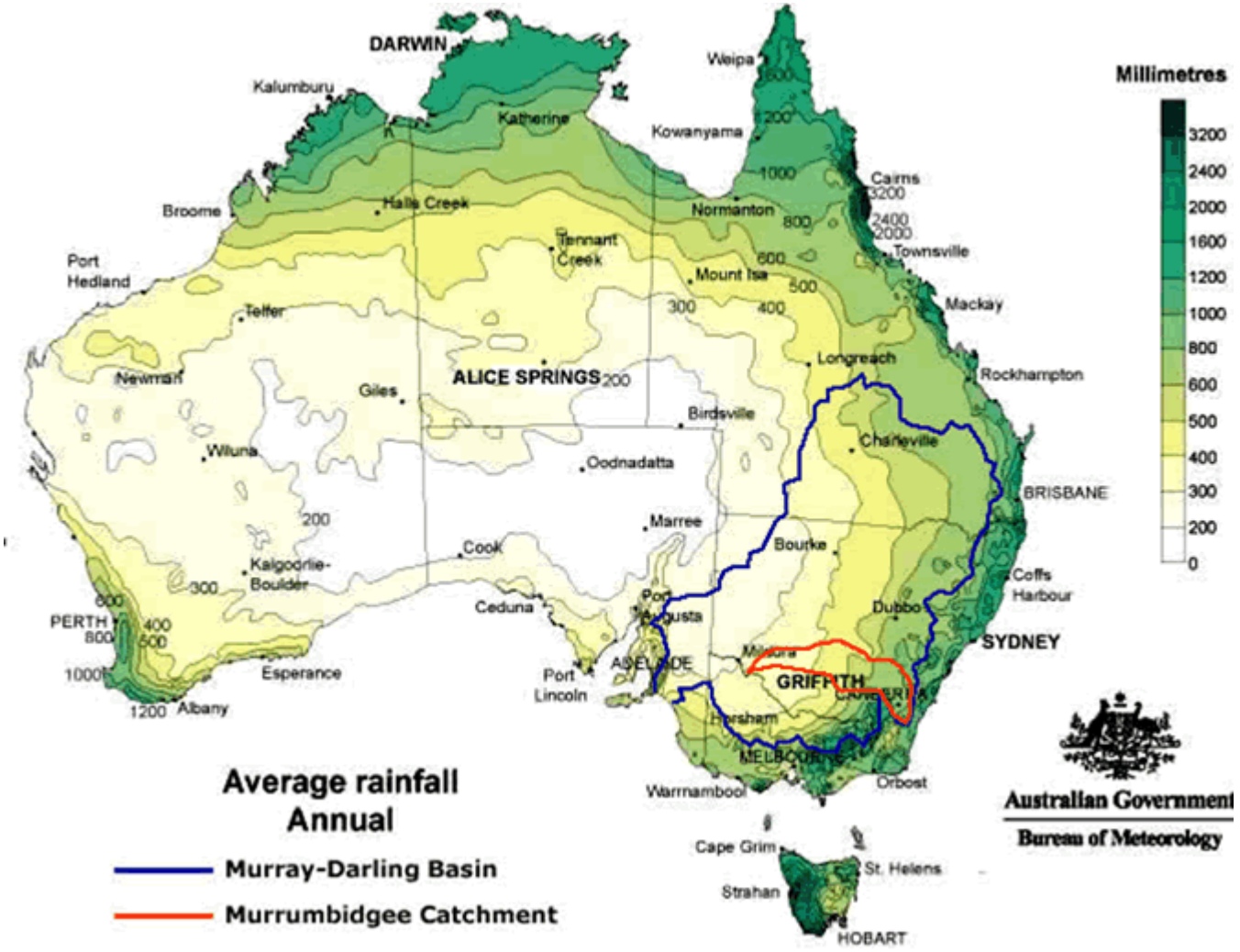
ARAFURA SEA
TIMOR SEA
GULF OF CARPENTARIA
CORAL SEA
SOUTH PACIFIC OCEAN
INDIAN OCEAN
TASMAN SEA
BASS STRAIT
GREAT AUSTRALIAN BIGHT
DARWIN
Litchfield National Park
Kakadu National Park
Katherine
Wyndham
Kununurra
Daly Waters
Borroloola
Weipa
Coen
Cooktown
Daintree National Park
Mossman
Cairns
Burketown
Normanton
Northern Territory
Tennant Creek
Broome
Derby
Fitzroy Crossing
Halls Creek
The Kimberley
Bungle Bungles
Devils Marbles
Camooweal
Mount Isa
Cloncurry
Charters Towers
Townsville
Hughenden
Port Hedland
Newman
Kings Canyon
Alice Springs
Yulara
Uluru (Ayers Rock)
Kulgera
Boulia
Winton
Longreach
Barcaldine
Birdsville
Queensland
Western Australia
Carnarvon
Monkey Mia
Meekatharra
Mount Magnet
Laverton
Leonora
Geraldton
Coolgardie
Kalgoorlie-Boulder
Southern Cross
The Pinnacles
PERTH
Rottnest Island
Northam
Wave Rock
Norseman
Eucla
Caiguna
Esperance
Bunbury
Margaret River Wine Region
Albany
Maria
Oodnadatta
South Australia
Coober Pedy
Marree
Glendambo
Cadlina
Cameron Corner
Flinders Ranges
Port Augusta
Burra
Port Lincoln
Barossa Valley
Wine Region
Renmark
Mildura
ADELAIDE
Talem Bend
Kangaroo Island
Bordertown
New South Wales
Wilcannia
Broken Hill
Dubbo
Forbes
Hunter Valley Wine Region
Port Macquarie
Newcastle
Blue Mountains
Bathurst
Hay
Narrandera
Wagga Wagga
SYDNEY
Wollongong
ACT
CANBERRA
Batemans Bay
Victoria
Horsham
Mount Gambier
The Grampians
Ballarat
Albury
Cooma
Mount Kosciuszko
MELBOURNE
Geelong
Warrnambool
The Twelve Apostles
Great Ocean Road
Phillip Island
Sale
Cann River
Tasmania
Smithton
Burnie
Devonport
Cradle Mountain
Launceston
Queenstown
Franklin & Gordon Rivers
Freycinet National Park
HOBART
Port Arthur
N

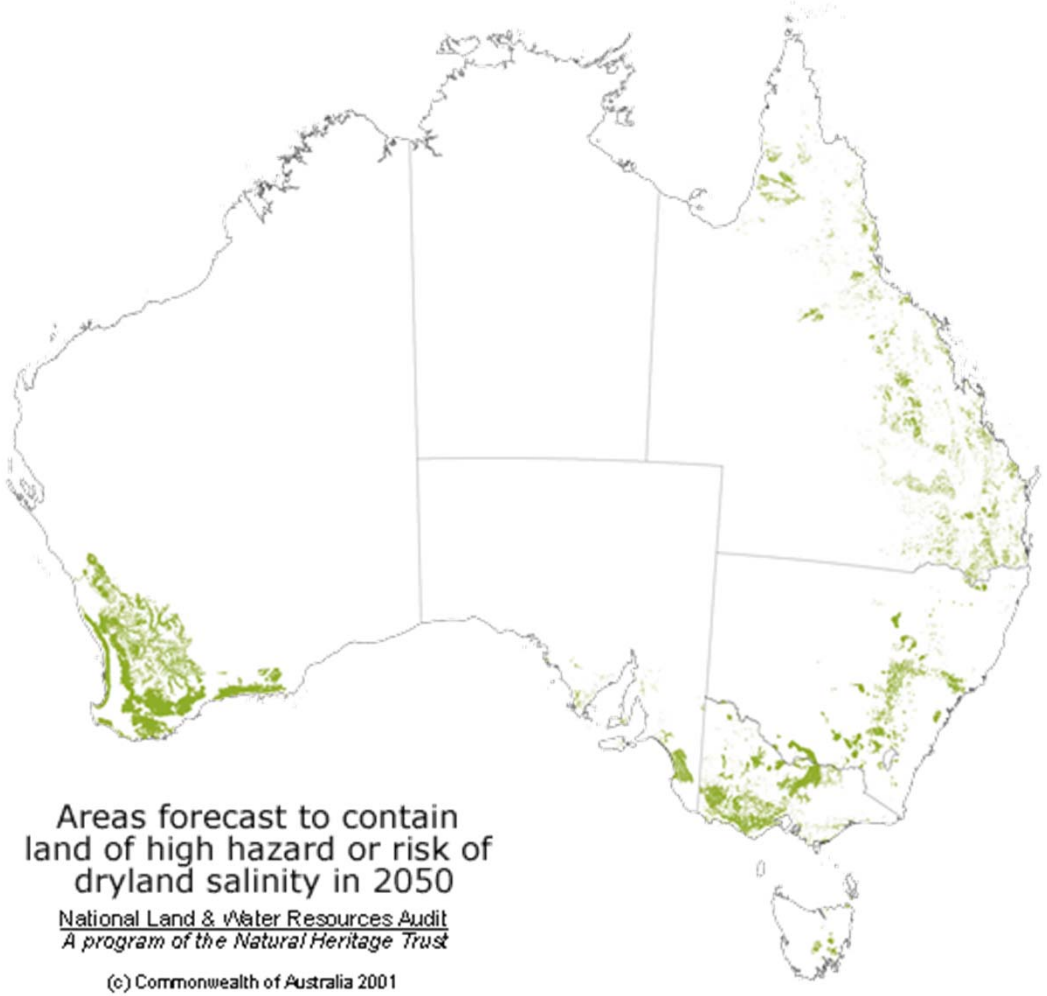
Australian Research Council - http://www.arc.gov.au/
Provides competitive research grants and fellowships, open also to international researchers

National Health and Medical Research Council - http://www.nhmrc.gov.au/
Provides competitive grants and fellowship for medical research, open also to international researchers

Universities
Universities Australia- peak body for all 39 universities
http://www.universitiesaustralia.edu.au/
Group of Eight – most research intensive universities - http://www.go8.edu.au/
Australian Technology Network – http://www.atn.edu.au/
Innovative Research Universities - http://www.iru.edu.au/
Regional University Network - http://www.run.edu.au/

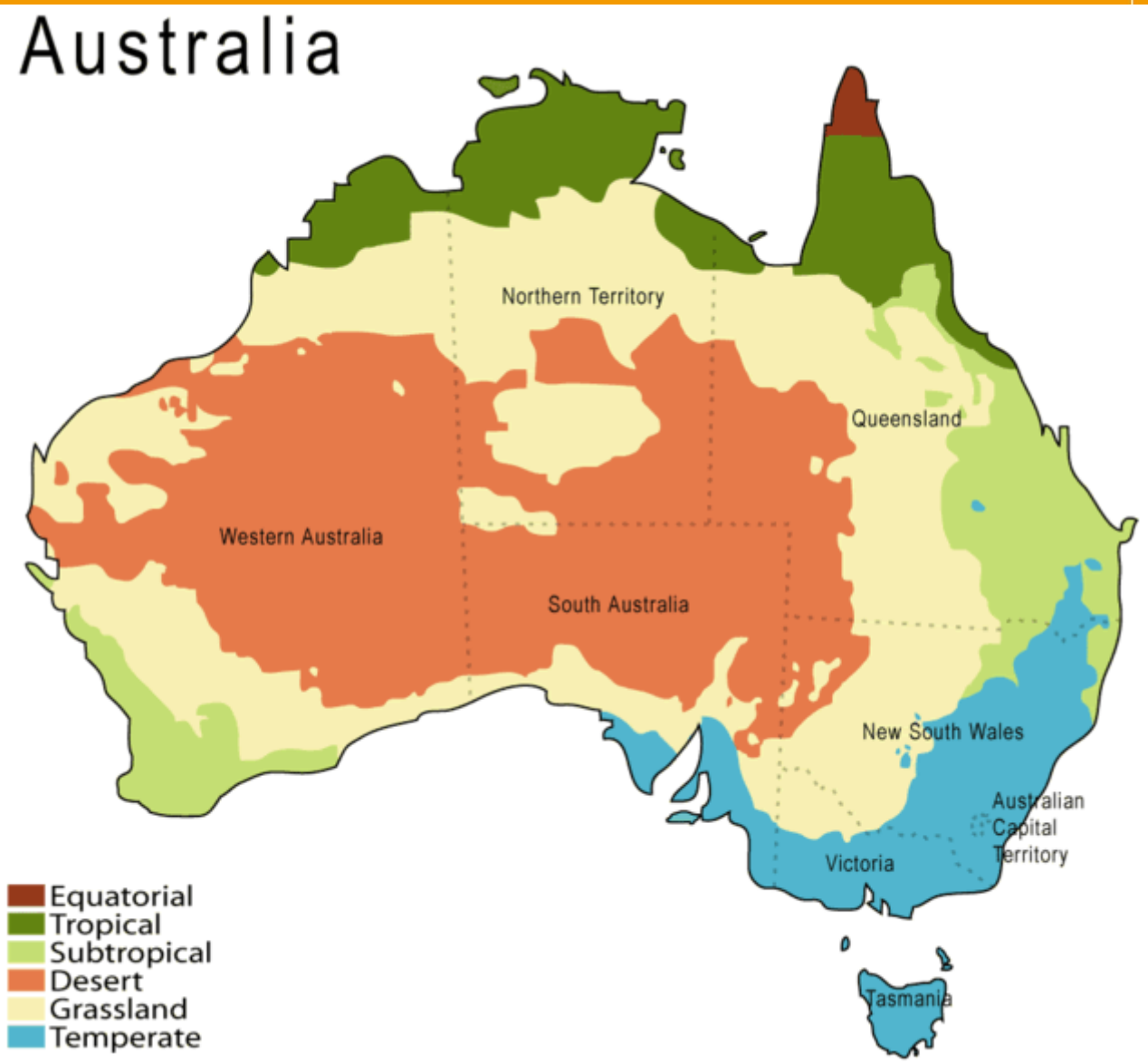
Commonwealth Scientific and Industrial Research Organisation -
http://www.csiro.au/
Australia's National Research Centre, strong international linkages (also through Global Research Alliance), opportunities for international cooperation through CSIRO Flagship Collaboration Fund


DARWIN
Kalumburu
Katherine
Weipa
Kowanyama
Cairns
3200
2400
2000
Townsville
Normanton
Broome
Halls Creek
Tennant Creek
Mount Isa
Port Hedland
Telfer
Mackay
Longreach
Rockhampton
Newman
Giles
ALICE SPRINGS
Birdsville
Charleville
Wiluna
Oodnadatta
BRISBANE
Marree
Bourke
Cook
Kalgoorlie-Boulder
Coffs Harbour
Ceduna
Dubbo
PERTH
SYDNEY
Esperance
Port Lincoln
ADELAIDE
GRIFFITH
Albany
Horsham
MELBOURNE
Warrnambool
Orbost
Cape Grim
St. Helens
Strahan
HOBART
Millimetres
3200
2400
2000
1600
1200
1000
800
600
500
400
300
200
0
Average rainfall
Annual
Murray-Darling Basin
Murrumbidgee Catchment
Australian Government
Bureau of Meteorology



Areas forecast to contain land of high hazard or risk of dryland salinity in 2050

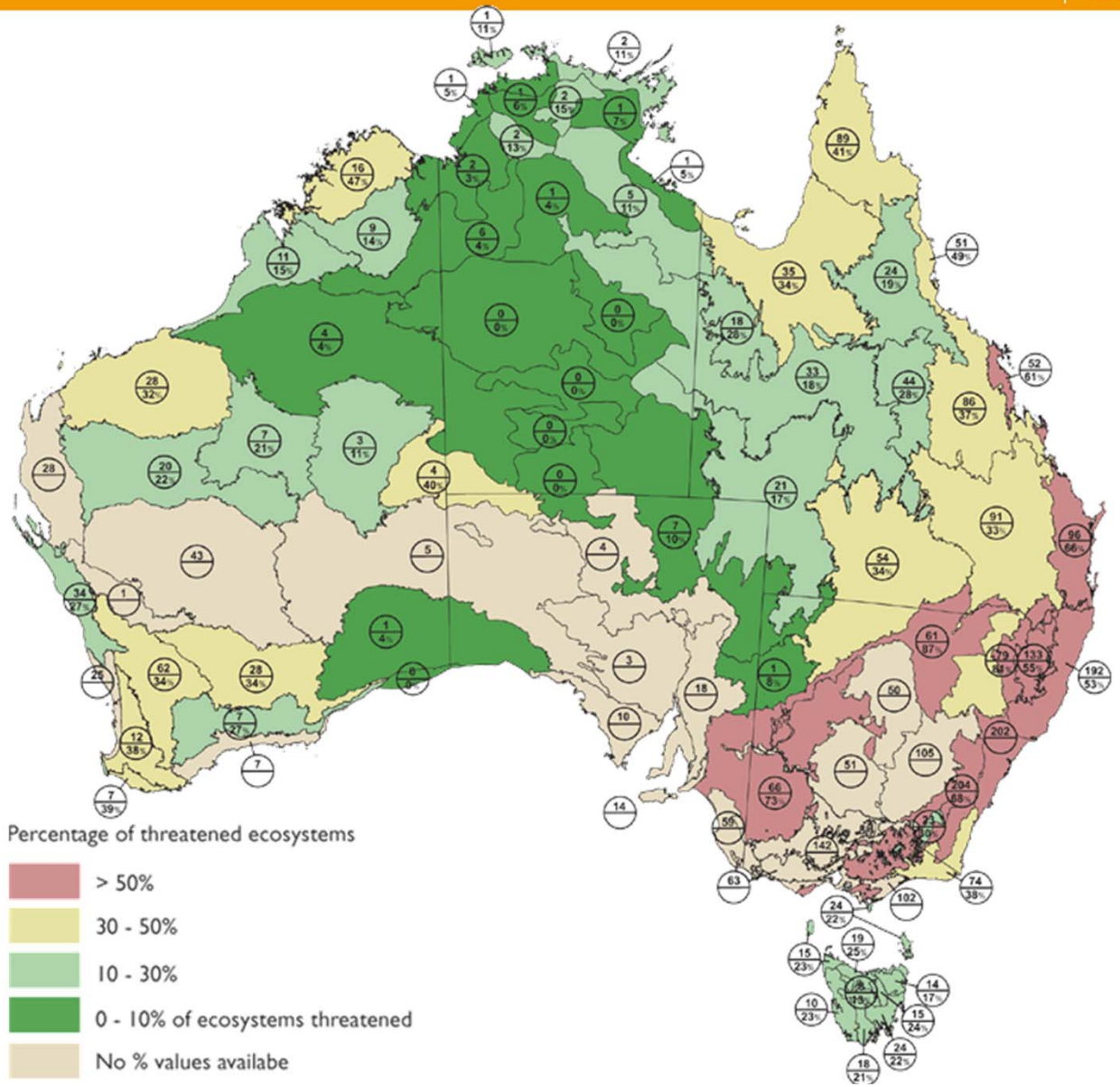
National Land & Water Resources Audit
A program of the Natural Heritage Trust


Australia
Northern Territory
Queensland
Western Australia
South Australia
New South Wales
Australian Capital Territory
Victoria
Tasmania
Equatorial
Tropical
Subtropical
Desert
Grassland
Temperate

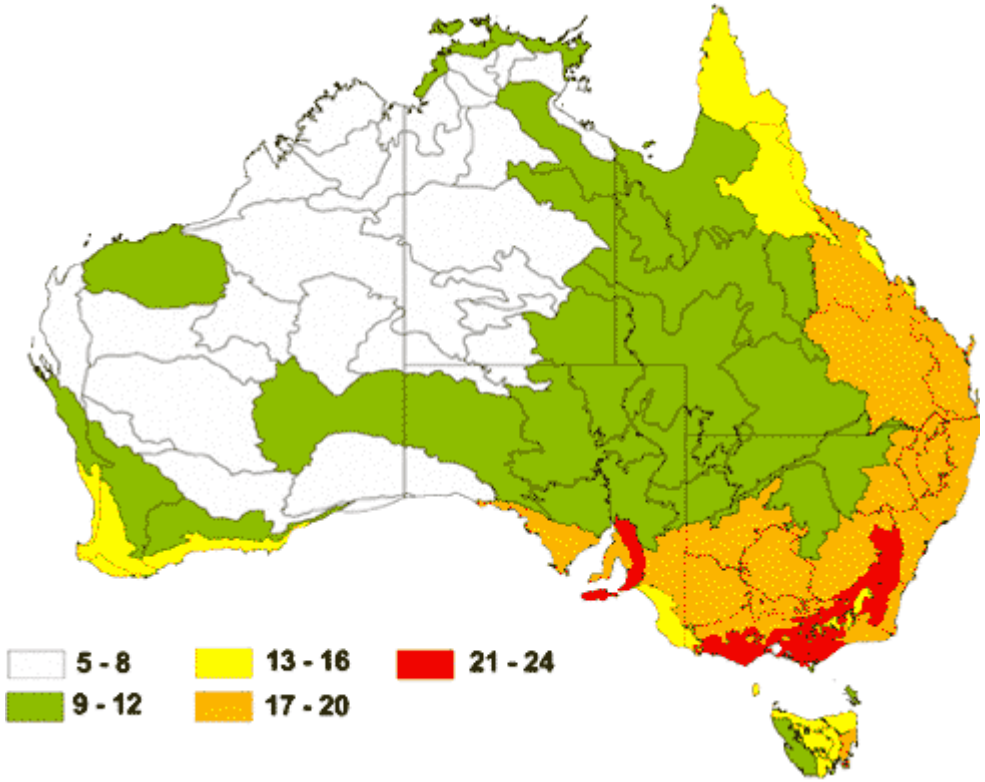
Australian Government

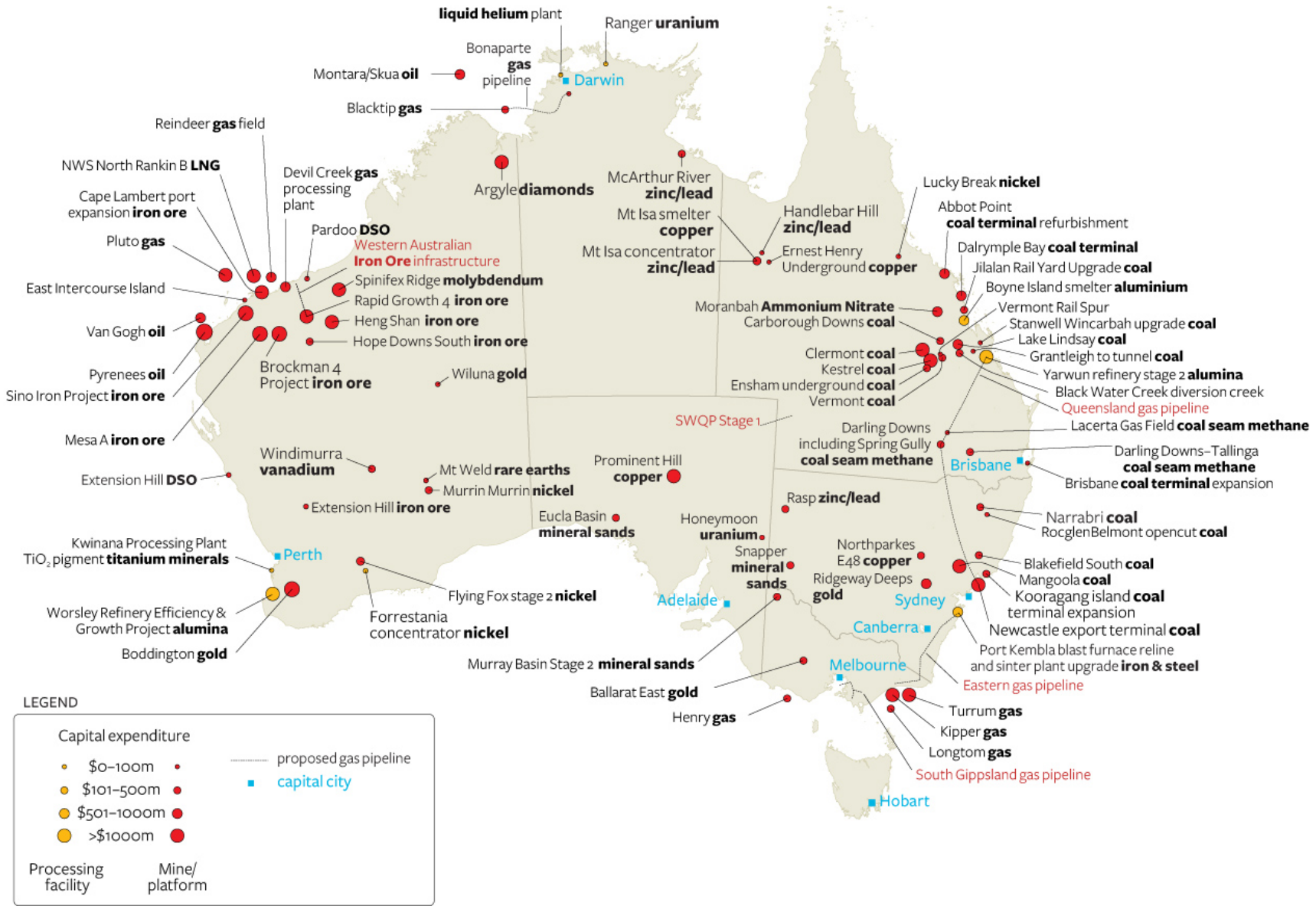
Department of Industry, Innovation, Science, Research and Tertiary Education

innovation.gov.au

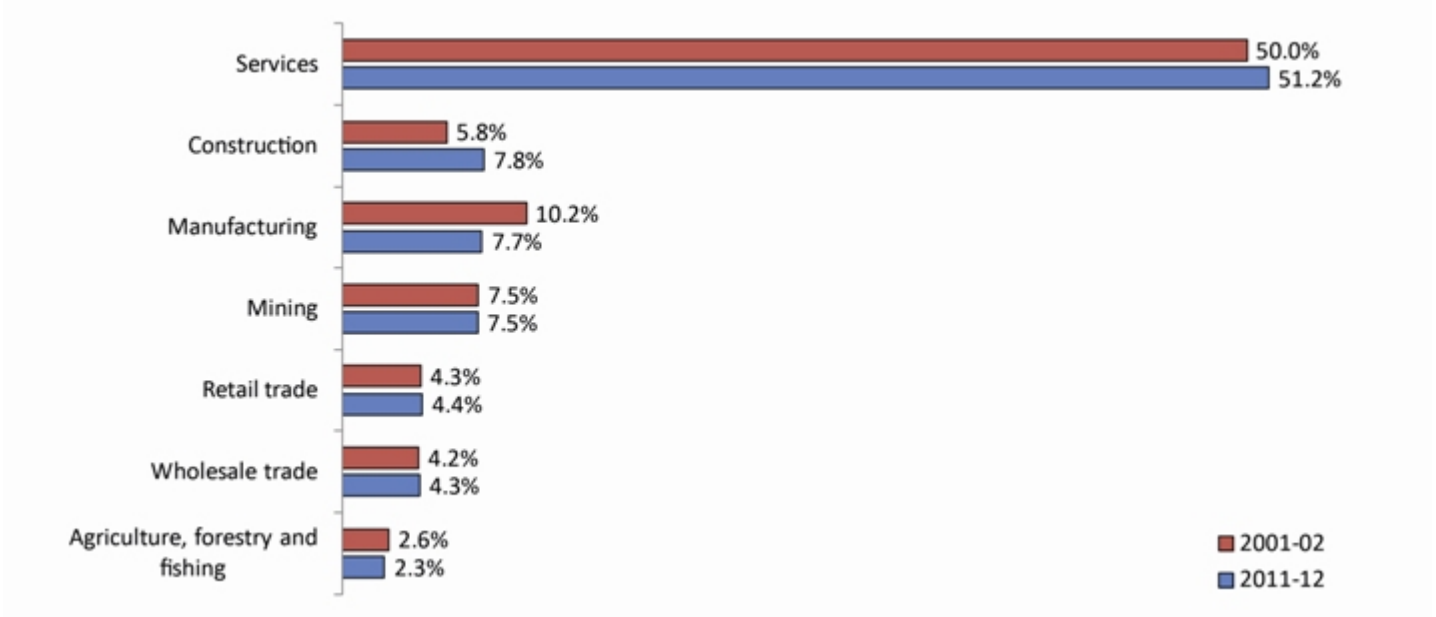

Percentage of threatened ecosystems
> 50%
30 - 50%
10 - 30%
0 - 10% of ecosystems threatened
No % values availabe

Number of terrestrial vertebrate and invertebrate non-indigenous species with major effect

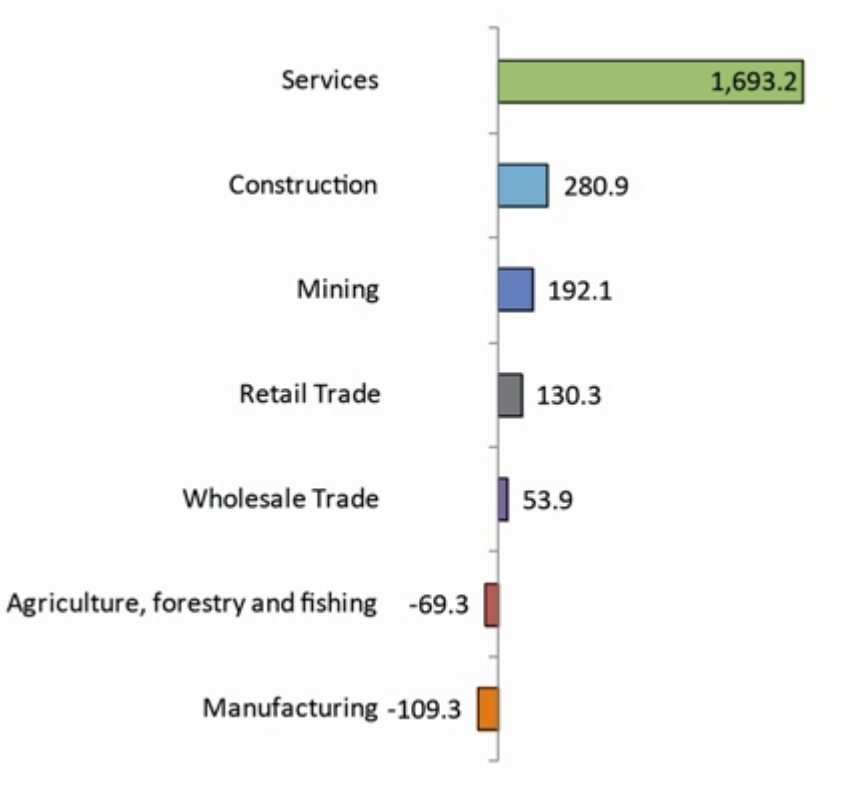



liquid helium plant
Ranger uranium
Bonaparte gas pipeline
Montara/Skua oil
Darwin
Blacktip gas
Reindeer gas field
NWS North Rankin B LNG
Devil Creek gas processing plant
Argyle diamonds
McArthur River zinc/lead
Cape Lambert port expansion iron ore
Mt Isa smelter copper
Handlebar Hill zinc/lead
Lucky Break nickel
Abbot Point coal terminal refurbishment
Pardoo DSO
Pluto gas
Western Australian Iron Ore infrastructure
Mt Isa concentrator zinc/lead
Ernest Henry Underground copper
Dalrymple Bay coal terminal
Jilalan Rail Yard Upgrade coal
Spinifex Ridge molybdenum
East Intercourse Island
Rapid Growth 4 iron ore
Boyne Island smelter aluminium
Moranbah Ammonium Nitrate
Vermont Rail Spur
Heng Shan iron ore
Carborough Downs coal
Stanwell Wincarbah upgrade coal
Van Gogh oil
Hope Downs South iron ore
Lake Lindsay coal
Clermont coal
Grantleigh to tunnel coal
Brockman 4 Project iron ore
Wiluna gold
Kestrel coal
Yarwun refinery stage 2 alumina
Pyrenees oil
Ensham underground coal
Black Water Creek diversion creek
Sino Iron Project iron ore
Vermont coal
Queensland gas pipeline
SWQP Stage 1
Mesa A iron ore
Darling Downs including Spring Gully coal seam methane
Lacerta Gas Field coal seam methane
Windimurra vanadium
Prominent Hill copper
Darling Downs–Tallinga coal seam methane
Brisbane
Extension Hill DSO
Mt Weld rare earths
Murrin Murrin nickel
Brisbane coal terminal expansion
Rasp zinc/lead
Extension Hill iron ore
Eucla Basin mineral sands
Honeymoon uranium
Narrabri coal
RocglenBelmont opencut coal
Kwinana Processing Plant
TiO2 pigment titanium minerals
Perth
Snapper mineral sands
Northparkes E48 copper
Blakefield South coal
Ridgeway Deeps gold
Mangoola coal
Kooragang island coal terminal expansion
Sydney
Flying Fox stage 2 nickel
Adelaide
Worsley Refinery Efficiency & Growth Project alumina
Canberra
Newcastle export terminal coal
Forrestania concentrator nickel
Port Kembla blast furnace reline and sinter plant upgrade iron & steel
Boddington gold
Murray Basin Stage 2 mineral sands
Melbourne
Eastern gas pipeline
Ballarat East gold
Turrum gas
Henry gas
Kipper gas
Longtom gas
South Gippsland gas pipeline
Hobart
LEGEND
Capital expenditure
$0–100m
$101–500m
$501–1000m
>$1000m
Processing facility
Mine/ platform
proposed gas pipeline
capital city

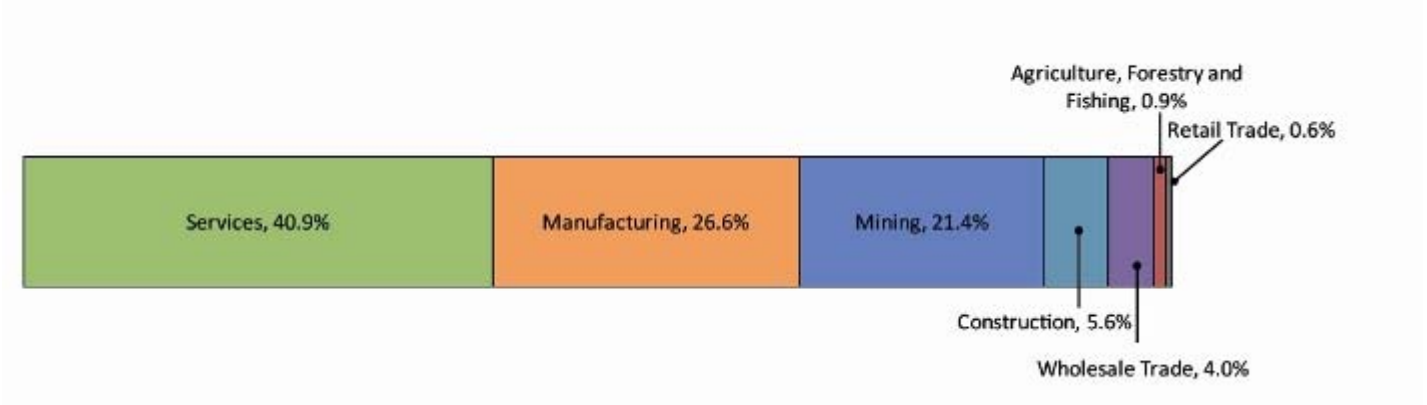
Industry contribution to Australian GDP 2011-12



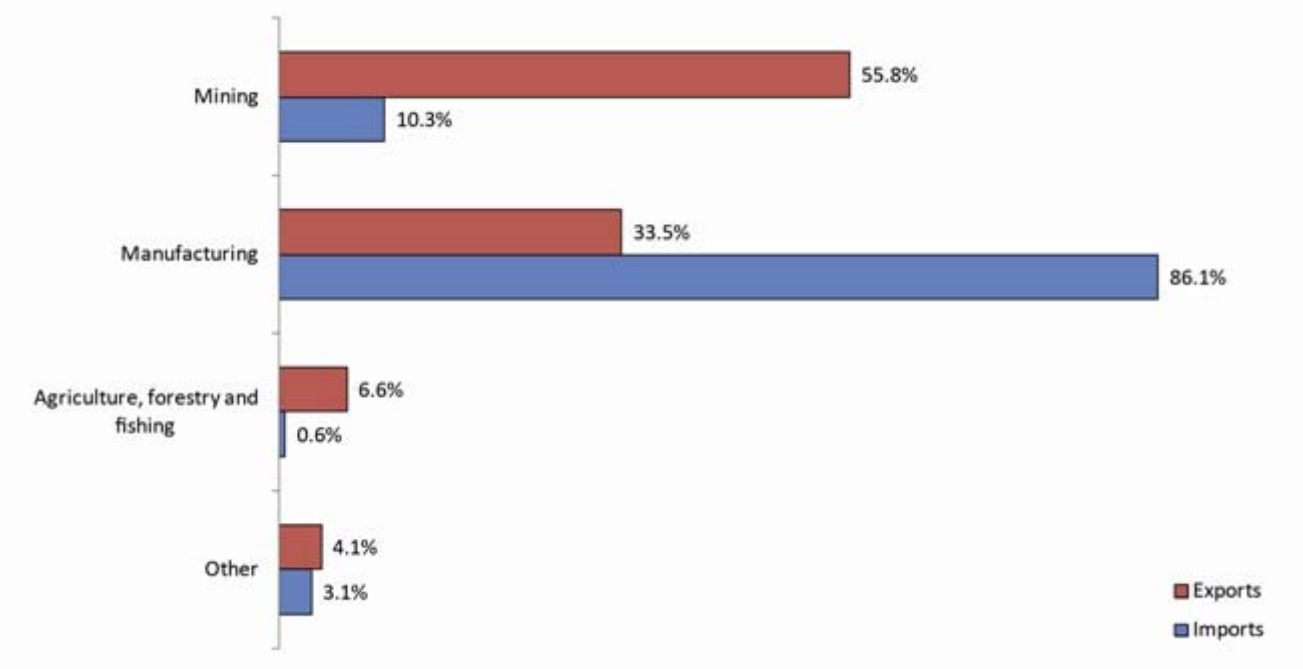
Change in employment 2002-12



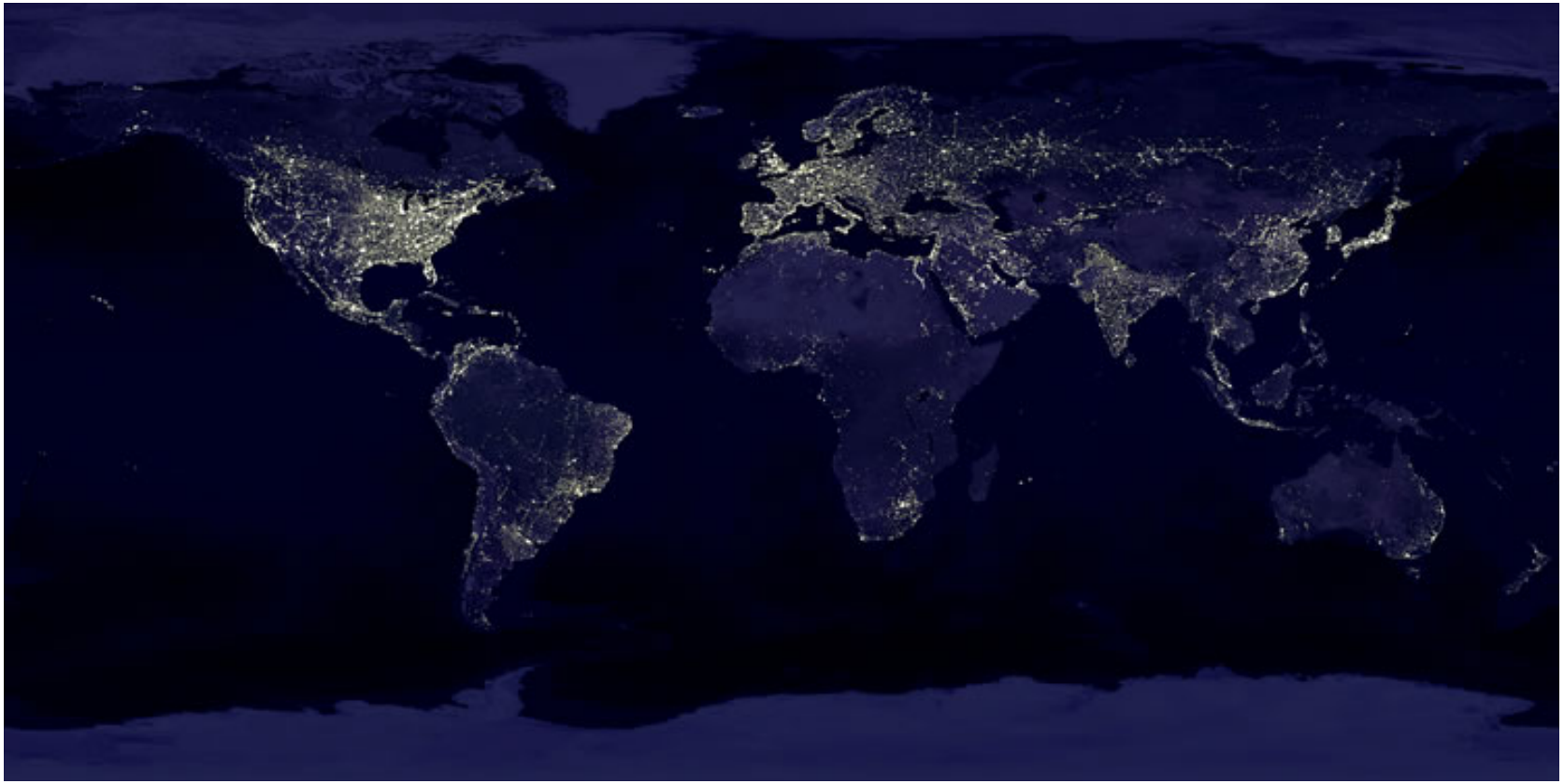
Industry contribution to business expenditure on R&D 2010-11

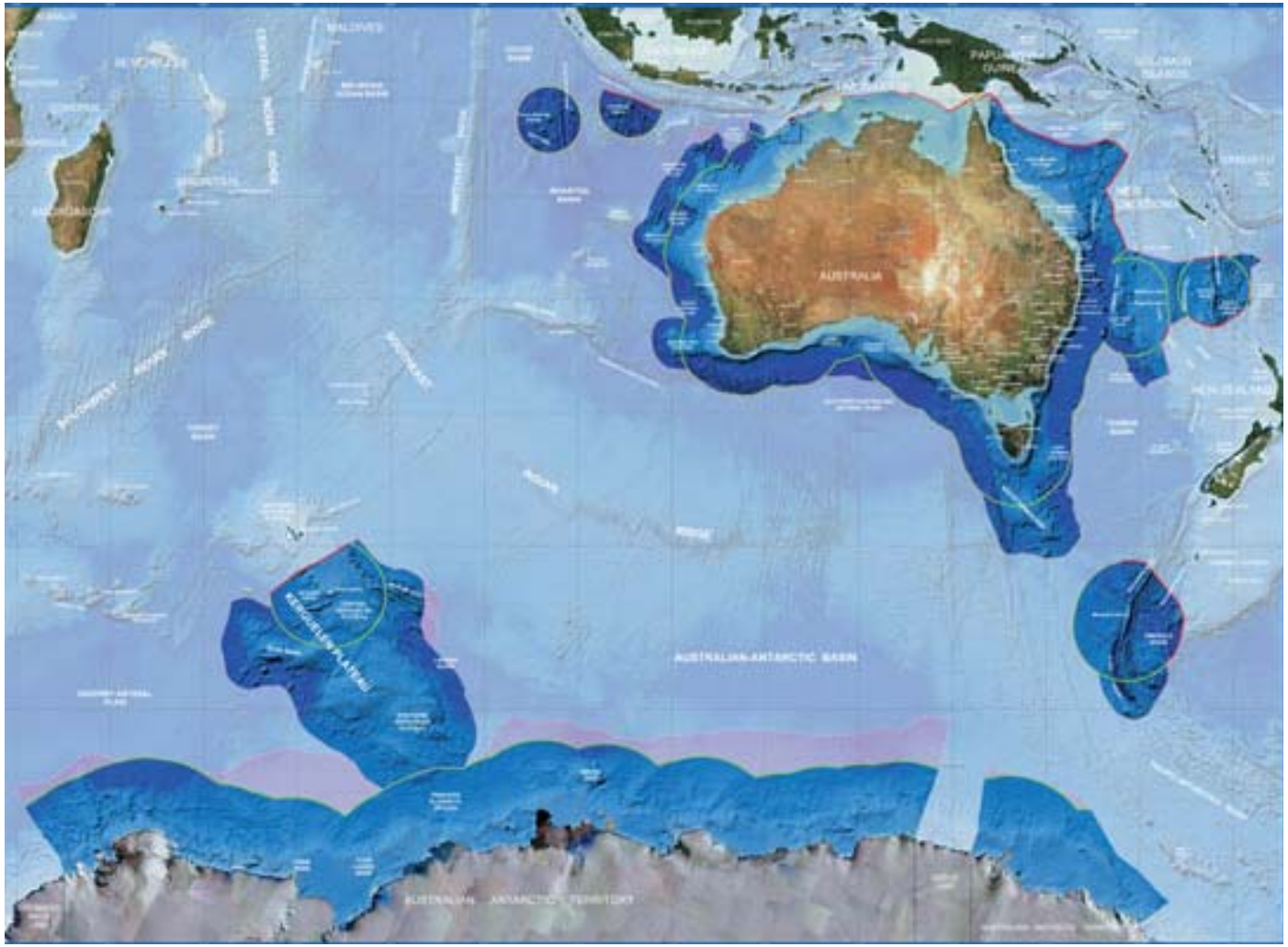


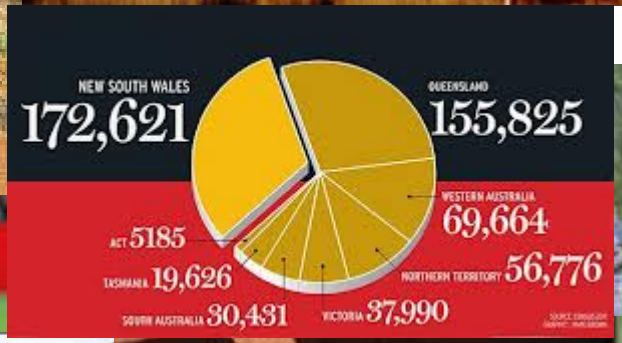
Industry contribution to merchandise trade 2011-12




AUSTRALIA
NORTHERN TERRITORY
WESTERN AUSTRALIA
SOUTH AUSTRALIA
QUEENSLAND
NEW SOUTH WALES
VICTORIA
TASMANIA
CAPE YORK
GREAT BARRIER REEF
CORAL SEA
COOKTOWN
CAIRNS
GULF OF CARPENTARIA
KAKADU NAT LPK
KATHERINE GORGE
BROOME
EIGHTY MILE BEACH
GEIKIE GORGE
WOLFE CK METEORITE CRATER
DEVIL'S MARBLES
GREAT SANDY DESERT
MT ZEIL
KINGS CANYON
ALICE SPRINGS
NORTH WEST CAPE
MT BRUCE
GIBSON DESERT
THE OLGAS
ULURU KATA TJUTA NP
SIMPSON DESERT
EMU
ULURU (AYERS ROCK)
SHARK BAY
MT WOODROFFE
PINNACLES
NAMBUNG NP
PERTH
GREAT VICTORIA DESERT
CENTRAL AUSTRALIAN RAILWAY
COOBER PEDY
EYRE
TRANS AUSTRALIAN RA
HYDEN WAVE ROCK
CAPE LEEUWIN
PEMBERTON
KARRI FOREST
ALBANY
GREAT AUSTRALIAN BIGHT
LK TORRENS
LK GAIRDNER
PORT AUGUSTA
ADELAIDE
KANGAROO IS
BROKEN HILL
LIGHTNING RIDGE
DARLING R
WARBURTON CK
EUCALYPT TREE
KOALA
DIVIDING RANGE
FRASER IS
BRISBANE
GOLD COAST
SYDNEY
CANBERRA
MELBOURNE
ENCOUNTER BAY
TWELVE APOSTLES
PORT PHILLIP BAY
BASS ST
KING IS
MT OSSA 1617
CRADLE MTN
FURNEAUX GROUP
TASMAN SEA
HOBART
Unique Media®




AUSTRALIA
AUSTRALIAN-ANTARCTIC BASIN

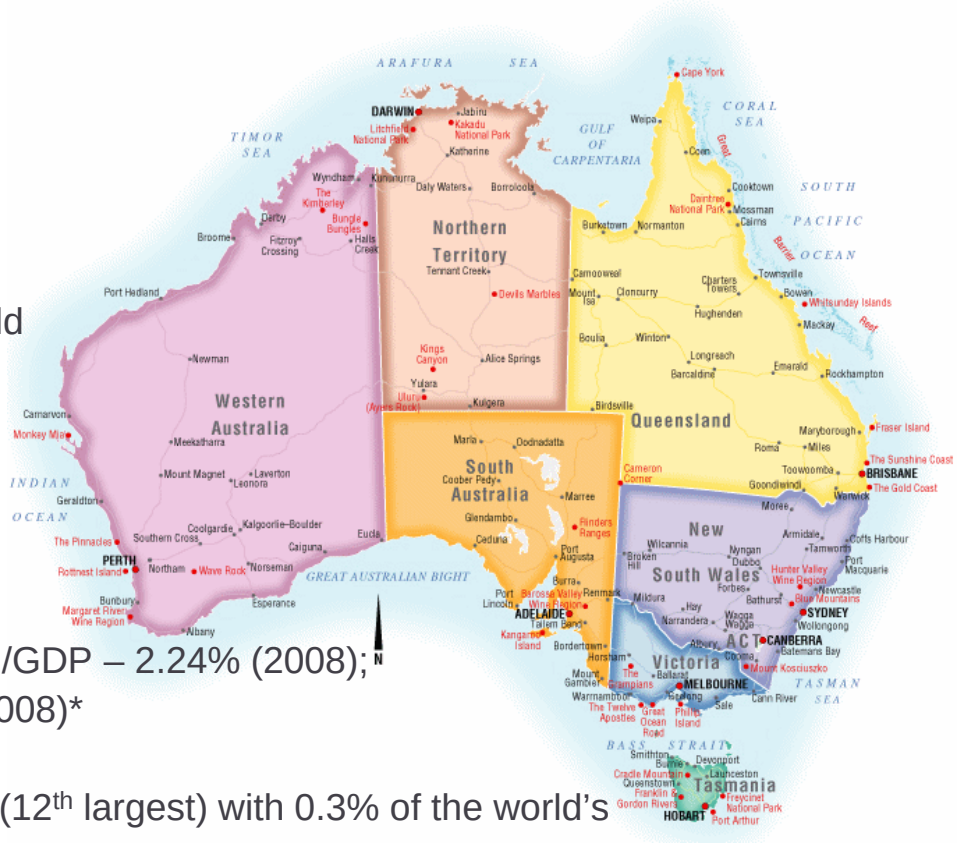

NEW SOUTH WALES
172,621
QUEENSLAND
155,825
WESTERN AUSTRALIA
69,664
NORTHERN TERRITORY
56,776
VICTORIA
37,990
SOUTH AUSTRALIA
30,431
TASMANIA
19,626
ACT
5185


Encountering
Aboriginal
language
Studies in th
history
Australian linguistic


"Sorry,

Australia in Brief

- World's 14th largest economy
- Located in the fastest-growing region of the world
- Population is 22.5 million
- 6th largest nation (land mass);
  3rd largest marine area; unique flora and fauna
- Research Intensity - Gross Expenditure on R&D/GDP – 2.24% (2008);
  Business Expenditure on R&D/GDP – 1.35% (2008)*
- Australia produces 3.0% of world's publications (12th largest) with 0.3% of the world's population*
- Citation impact above world average



*OECD Main Science and Technology Indicators (2012-1) / Thomson Reuters InCites

Australia's National Research Priorities

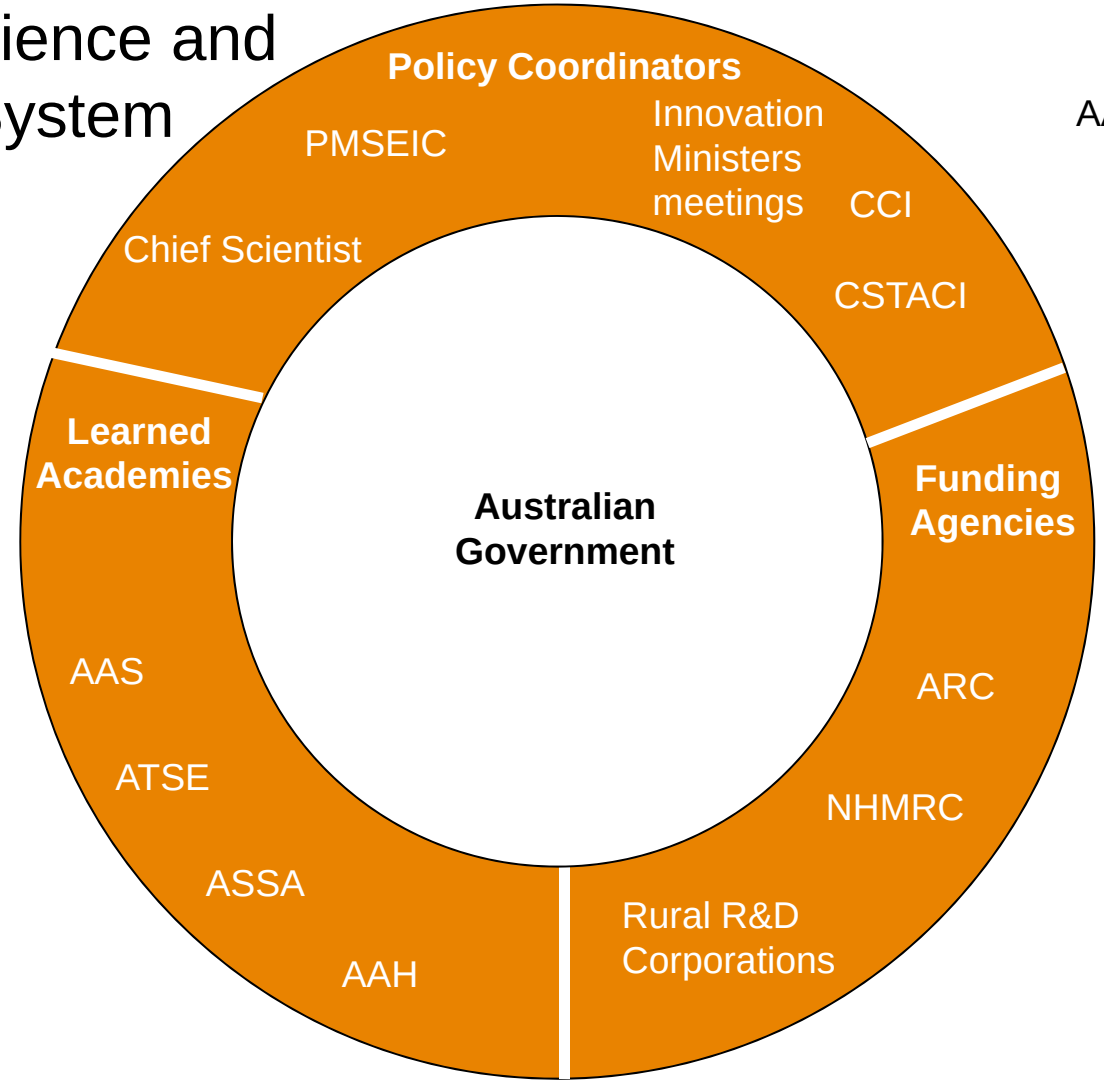
- **An Environmentally Sustainable Australia**
  Water resources; Transforming existing industries; Soil research; Emissions reduction and capture; Sustainable use of biodiversity; Developing deep earth resources; Responding to climate change and variability.

- **Promoting and Maintaining Good Health**
  Infant & Childhood Health; Aged Health; Preventative healthcare; Strengthening social and economic fabric.

- **Frontier Technologies for Building and Maintaining Australian Industries**
  Breakthrough science; Frontier technologies; Advanced materials; Smart information use; Promoting an innovation culture & economy.

- **Safeguarding Australia**
  Protecting critical infrastructure; Understanding our region & the world; Counteract the impact of invasive species; Protection from terrorism and crime; Transformational defence technologies.

Australia's Science and Technology System



AAO

CSIRO

41 Universities

ANSTO

Geoscience Australia

AIMS

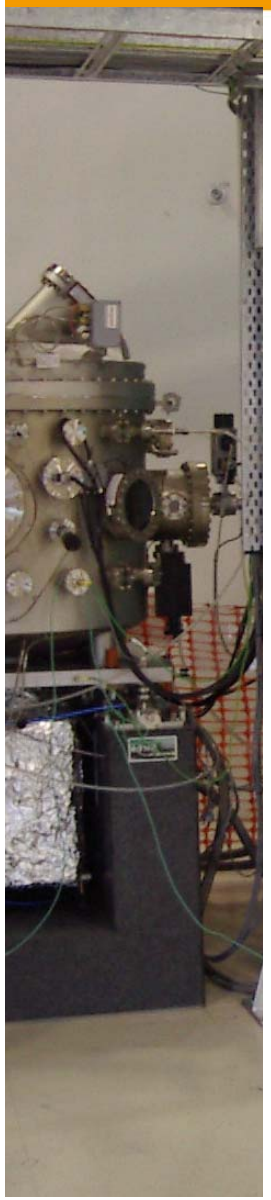
NICTA

Bureau of Meteorology

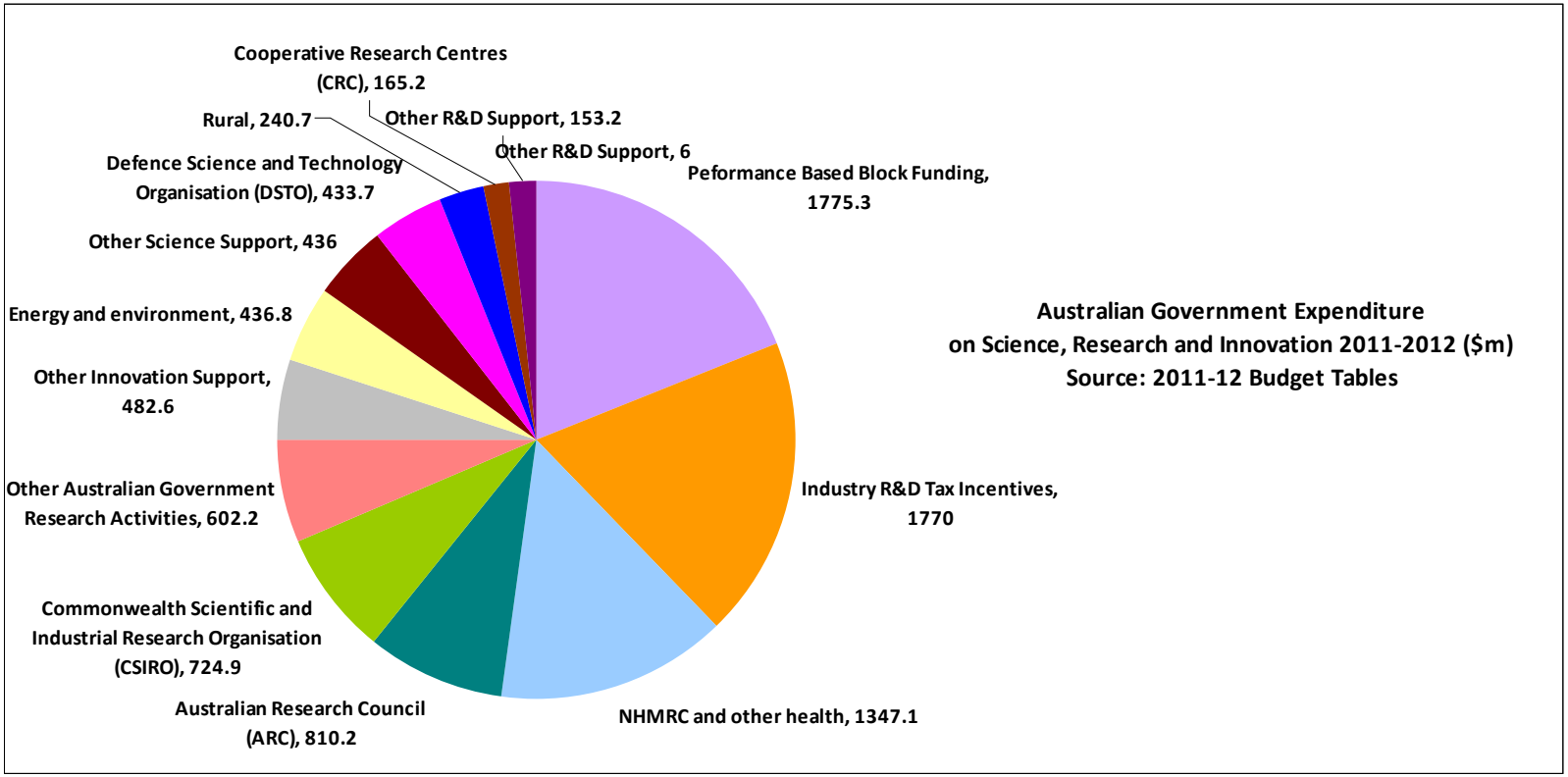
DSTO

ABARES

NMI



Australian Government support for science, research and innovation



Australian Government support – by area

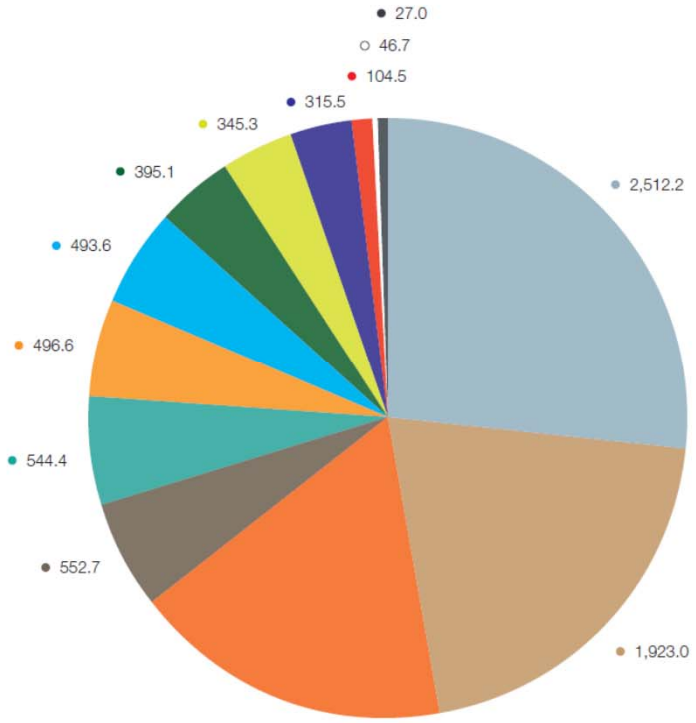


Figure 2: Australian Government support for science, research and innovation by SEO code ($m)

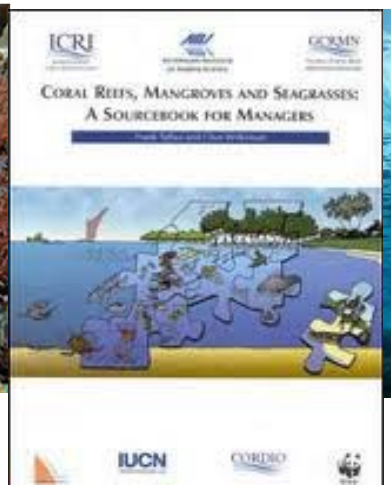
(Source: 2011-12 Budget tables)

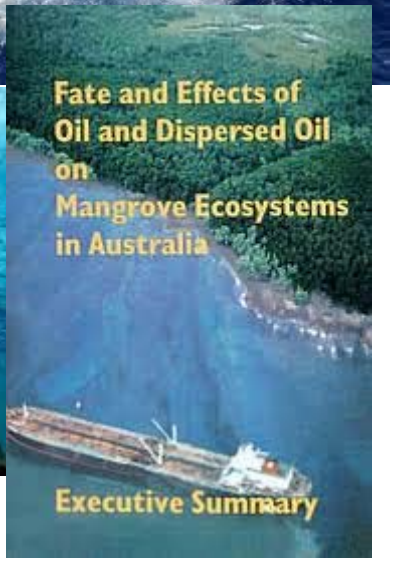
Key

- General advancement of knowledge
- Industrial production and technology
- Health
- Agriculture
- Energy
- Exploration and exploitation of the earth
- Defence
- Environment
- Transport, telecommunication, infrastructure
- Political and social systems
- Culture, recreation, religion and media
- Exploration and exploitation of space
- Education


National Research
FLAGSHIPS
CSIRO

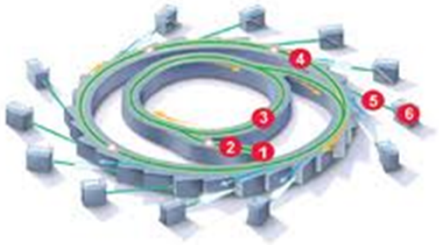
Australian Government | Australian Institute of Marine Science

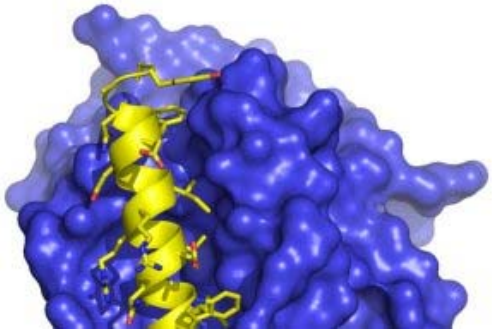


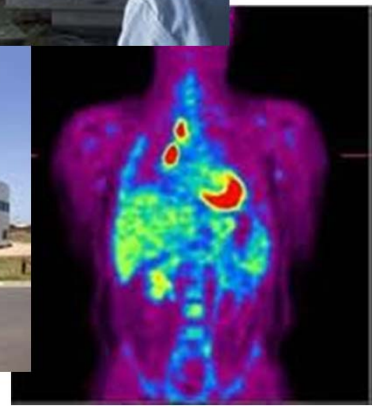


Australian Government

Ansto







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Oral Health crc

YOUNG AND WELL Cooperative Research Centre

CIEAM Cooperative Research Centre for Infrastructure and Engineering Asset Management

CRC for Mental Health

THE HEARING CRC

AUSTRALIAN BIOSECURITY CRC FOR EMERGING INFECTIOUS DISEASE

An Australian Government Initiative

AutoCRC Smarter Safer Cleaner

CRC AUSTRALIA

Poultry CRC

PREMIUM QUALITY WOOL COOPERATIVE RESEARCH CENTRE

ADVANCED MANUFACTURING CRC

SMART SERVICES CRC

bushfire CRC

CO2 CRC

ACE CRC

ANTARCTIC CLIMATE & ECOSYSTEMS CRC

NINTI ONE CRC REMOTE ECONOMIC PARTICIPATION

Australian Government

Department of Industry, Innovation, Science, Research and Tertiary Education

innovation.gov.au

IMOS

Integrated Marine Observing System

ammrf

Australian Microscopy & Microanalysis Research Facility

ands

AUSTRALIAN NATIONAL DATA SERVICE

ANFF

apn australian phenomics network

Australian Plant Phenomics Facility

NCRIS

National Collaborative Research Infrastructure Strategy

TERN

Terrestrial Ecosystem Research Network

National Imaging Facility

ATLAS OF LIVING AUSTRALIA

Bioplatforms Australia

Astronomy Australia Ltd.

agrf

Australian Genome Research Facility Ltd

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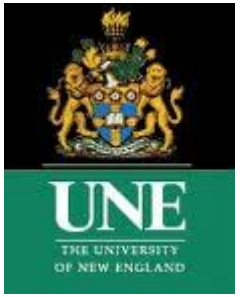
innovation.gov.au


UNIVERSITIES AUSTRALIA
DISCOVER LEARN LEAD


AUSTRALIAN TECHNOLOGY NETWORK OF UNIVERSITIES


Regional Universities Network
REGIONAL STRENGTH. NATIONAL SUCCESS.


SWINBURNE UNIVERSITY OF TECHNOLOGY


UNE
THE UNIVERSITY OF NEW ENGLAND


UNIVERSITY OF TASMANIA


VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA


UNIVERSITY OF TECHNOLOGY SYDNEY


QUT
Queensland University of Technology


Griffith UNIVERSITY


AUSTRALIA
ECU
EDITH COWAN
UNIVERSITY


RMIT UNIVERSITY


UNIVERSITY OF CANBERRA
AUSTRALIA'S CAPITAL UNIVERSITY


DEAKIN UNIVERSITY


Curtin
University of Technology


University of the Sunshine Coast


MACQUARIE UNIVERSITY


JAMES COOK UNIVERSITY
AUSTRALIA


UniSA
University of South Australia


University of Ballarat
Learn to succeed


Murdoch UNIVERSITY


University of Western Sydney
Bringing knowledge to life


LA TROBE UNIVERSITY
AUSTRALIA


Charles Sturt University


ACU
AUSTRALIAN CATHOLIC UNIVERSITY

Excellence in Research Australia (ERA)

FoR Code	FoR Name	Average Rating	Assessed UoEs	FTEs	Research Outputs	W
01	Mathematical Sciences	3.2	24	880	8,659	
0101	Pure Mathematics	3.2	18	214	2,363	
0102	Applied Mathematics	3.6	17	250	2,910	
0103	Numerical and Computational Mathematics	3.8	5	73	911	
0104	Statistics	2.9	12	224	1,731	
0105	Mathematical Physics	4.5	6	60	688	
0199	Other Mathematical Sciences	n/a	0	59	55	
02	Physical Sciences	3.7	24	965	13,666	
0201	Astronomical and Space Sciences	4.2	13	204	3,374	
0202	Atomic, Molecular, Nuclear, Particle and Plasma Physics	2.9	11	152	2,746	
0203	Classical Physics	5.0	1	33	441	
0204	Condensed Matter Physics	3.5	15	196	2,425	
0205	Optical Physics	4.0	12	189	3,067	
0206	Quantum Physics	4.5	8	62	837	
0299	Other Physical Sciences	3.6	5	130	776	
03	Chemical Sciences	3.5	26	1,154	11,915	
0301	Analytical Chemistry	3.5	17	157	1,883	
0302	Inorganic Chemistry	2.8	12	115	1,791	
0303	Macromolecular and Materials Chemistry	4.1	10	153	1,415	
0304	Medicinal and Biomolecular Chemistry	3.6	9	153	903	
0305	Organic Chemistry	2.9	11	181	1,534	
0306	Physical Chemistry (Incl. Structural)	3.7	21	261	3,664	
0307	Theoretical and Computational Chemistry	4.5	4	54	375	
0399	Other Chemical Sciences	2.5	2	82	350	
04	Earth Sciences	3.8	21	718	8,258	
0401	Atmospheric Sciences	4.3	3	58	557	
0402	Geochemistry	4.1	9	106	1,048	
0403	Geology	4.1	15	222	3,073	
0404	Geophysics	3.4	9	78	1,023	
0405	Oceanography	3.6	8	71	977	
0406	Physical Geography and Environmental Geoscience	3.7	13	147	1,482	

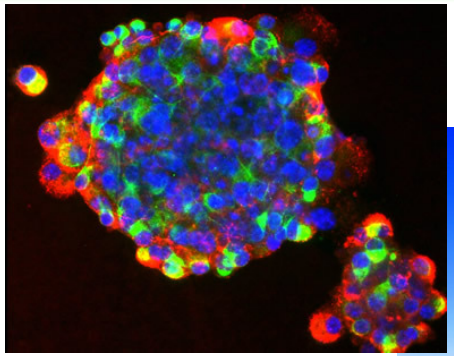

BUDGET
BUDGET 2012-13
Strong Economy. Fair Australia.

Building strategic research cooperation

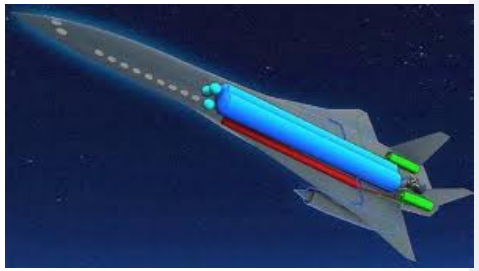
- **JSTCC steps to strategic research collaboration**
- Identification of potential research priorities for consideration by the JSTCC
- Scientific discussions to test the depth and commonality of interests
- JSTCC consideration and adoption as a priority
- Consideration in the EU Member State processes to set the annual EU research work programs (funding calls) and adoption of call text targeting Australia
- Orchestration of in-principle Australian funding support for EU calls targeted at Australia
- Development of Australia-EU consortia and the preparation of call proposals
- Evaluation of funding bids
- Contract negotiation for successful proposals
- Signing of contacts and commencement of research.

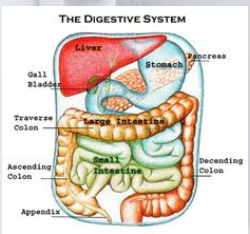
- You can get it wrong!

- Identification of potential research priorities for JSTCC consideration – ASYMMETRIC!
- Scientific discussions to test the depth and commonality of interests – INTEREST WITHOUT COMMITMENT/CAPABILITY!
- Consideration in the EU Member State processes to set the funding calls – CAN BE CHALLENGING FOR THE COMMISSION!
- Orchestration of in-principle Australian funding support for EU calls targeted at Australia – CAN BE CHALLENGING!
- Development of Australia-EU consortia and the preparation of call proposals – COMPETITIVE NEUTRALITY!




CYBER
SECURITY




THE DIGESTIVE SYSTEM
Liver
Stomach
Pancreas
Gall Bladder
Traverse Colon
Large Intestine
Small Intestine
Ascending Colon
Decending Colon
Appendix

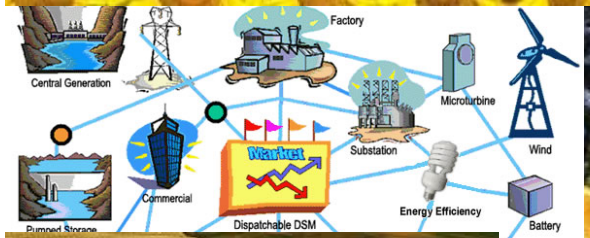

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION
EUROPEAN COMMISSION
HORIZON 2020
INNOVATION UNION
Europe 2020

CAESIE CONSORTIUM

Australian Government

Department of Industry, Innovation, Science, Research and Tertiary Education

innovation.gov.au




Science
BREAKTHROUGH
OF THE YEAR
HIV Treatment as Prevention
AAAS


Science
Reprogramming Cells
AAAS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Christmas Greetings
from
Australia