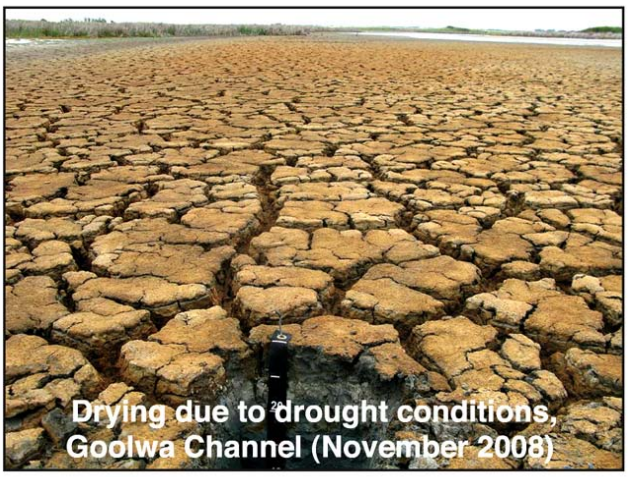
THE UNIVERSITY of ADELAIDE

Strategic Plan
Acid Sulfate Soils Centre (ASSC)



Drying due to drought conditions, Goolwa Channel (November 2008)

Reflooding at same site due to rainfall and installation of regulator across Goolwa Channel at Clayton Bay (December 2009)

The University of Adelaide

Strategic Plan – April 2015 (V3)

Cover Photographs

Top photograph of a typical inland Acid Sulfate Soil of the subtype "Sulfuric cracking clay soil" in the dry river bed of Goolwa Channel - Currency Creek area, near north Goolwa (No CUR 13 sampled in November 2008), looking west towards to the Adelaide Hills, South Australia. This "Sulfuric cracking clay soil" has trans-horizon polygonal cracks with acidic (pH < 4) surface coatings of the reddish-brown mineral, schwertmannite and pale yellow mottles of natrojarosite at depth (10 - 30 cm). This soil formed as a result of desiccation and dewatering of a former submerged pyrite-rich soil (Hypersulfidic subaqueous clayey soil) during drying cycles due to extreme drought conditions, between 2005 and 2009.

Bottom photograph taken at same location in December 2009 after reflooding due to winter rainfall runoff from adjacent catchments and pumping from Lake Alexandrina following installation of the temporary flow regulator across the Goolwa Channel at Clayton Bay. This submerged soil, under 80 cm of water, has remained largely acidic for a period of six months and classifies as "Sulfuric subaqueous clay soil".

Photographer: Rob Fitzpatrick.

Introduction

This Strategic Plan Statement underpins the delivery of, and should be read in conjunction with, our 2012-Business Plan Summary. It provides a link between long term and short term planning, and informs our operational planning processes.

It provides a five year framework consistent with our Business Plan, updates our scientific achievements and outlines planning and budgeting cycles.

Summary

The Acid Sulfate Soils Centre (ASSC) brings together scientists in the University of Adelaide (Faculty of Sciences), CSIRO (CSIRO Land and Water Flagship) and other agencies in Australia and overseas for basic and applied research to increase the understanding of processes in acid sulfate soils in the fields of environmental science, mineral exploration, minesite rehabilitation and infrastructure damage. The Acid Sulfate Soils Centre, which commenced in January 2012, is based at the University of Adelaide (UoA) with Professor Rob Fitzpatrick as the Director.

Aims and Goals

The ASSC focuses on basic and applied research and development related to acid sulfate soils in the fields of environmental science, mineral exploration, acid mine drainage and damage to infrastructures (e.g. roads and optical fibre cable systems)***.*** The ASSC has strong links with the CSIRO Land and Water Flagship, which provides core analytical facilities and scientific expertise to Centre projects. The Centre also interacts and collaborates with many other universities, State (e.g. EPA in SA), Territory & Federal government organisations (e.g. MDBA), national committees (e.g. National Committee for Acid Sulfate Soils- NatCASS) and agencies in Australia and overseas.

Aims

- Maintain a program of basic and applied research to strengthen the ASSC as a national and international resource for acid sulfate soil information, advanced research and training.
- Establish and maintain close links to government organisations and industry for funding and to ensure that the research findings are applied (e.g. amelioration of acid sulfate soils for protection and health of terrestrial environments; discovery of new mineral deposits).
- Maintain a steady source of input funding and publish the results in high impact, peer-reviewed journals and reports.
- Training of future scientists through postgraduate students and postdoctoral researchers in the area of acid sulfate soils.

Goals

- Promote better understanding and management of acid sulfate soils to mitigate negative impacts on the environment by developing effective amelioration strategies.
- Maintain a high quality research program on acid sulfate soils using state-of-the-art methodology.
- Promote better understanding of the importance of acid sulfate soils to mineral exploration and minesite rehabilitation.

ASSC operation

Key Research Areas

The four research areas are:

(i) Coastal environments (oceans and estuaries).
(ii) Inland environments (rivers, lakes, irrigated areas and the arid zone).
(iii) Mineral exploration (indicators of the presence of concealed ore/mineral deposits).
(iv) Acid Mine Drainage (minesite rehabilitation).

Focus:

Based on the expertise of scientists at universities (e.g. UoA), government organisations (e.g. CSIRO), state (e.g. EPA) and federal organisations (e.g. MDBA) within Australia and overseas (e.g. USA, Finland, China, Vietnam, Brunei, Kuwait and Iraq) the ASSC will continue to:

- Provide and enhance in-depth understanding of properties and processes in inland and coastal ASS in natural and managed wetlands across a range of climatic conditions and scales.
- Develop amelioration strategies that minimize the impact of acid sulfate soils and acid mine drainage in natural and managed environments.
- Develop and maintain databases, maps and reference collections on acid sulfate soils (e.g. continuing to lead the Atlas of Australian ASS project and sub-committee under the auspices of the National Committee for Acid Sulfate Soils).
- Development of a guide to acid sulfate soil features for sampling in mineral exploration.

ASSC will continue to conduct basic and strategic research in acid sulfate soils at a range of scales:

(i) landscapes (kilometers),
(ii) local (metres to kilometers),
(iii) micro (millimeters to micrometres).

Outputs

- (i) publications in high impact journals, books and book chapters,
- (ii) training of future scientists at undergraduate, postgraduate and postdoc level,
- (iii) workshops, seminars and conferences,
- (iv) maps, models and reference collections,
- (v) management strategies for acid sulfate soils,
- (vi) continue to add to and maintain the CSIRO archive of acid sulfate soil samples.

Centre Disciplines

Centre activities will be focused in a number of core discipline areas with associated leaders:

(a) Profiling, classification and mapping (Prof. Rob Fitzpatrick)
(b) Mineralogy (Mark Raven)
(c) Hydrogeochemistry, biogeochemistry and soil chemistry (Prof. Paul Shand)
(d) Organic matter and biological processes (Prof. Petra Marschner)
(e) Soil physics (Professor John Hutson)
(f) Remote sensing, spatial analysis and GIS (Steve Marvanek)
(g) Mineral exploration (Dr Steve Hill)
(h) Acid Mine Drainage and mine site rehabilitation (Prof. Andrea Gerson)
(i) Management of ASS, including policy and legislation (Dr Luke Mosley)

Centre commitments and contributions

The University of Adelaide provides fractions of salaries, as well as laboratory and office space, PhD stipends, electron microscopy (EM) at cost recovery rates and a 0.5FTE professorial appointment for Rob Fitzpatrick for an initial three year period from January 2012 to February 2015; followed by an extension from February 2015 to June 2018.

CSIRO provides at cost recovery rates:

1. Requisite scientific and technical support (typically 1-2 FTE per year) required to resource externally-funded ASSC projects. This will include Prof Paul Shand; Dr Andrew Baker, Mark Raven and Steve Marvanek.
2. Computer for Prof Rob Fitzpatrick.
3. Sample storage (cool rooms, freezers, chip-tray current and archival storage facilities).
4. Colour photography equipment via Ortery Photosimile light box and optical microscopes.
5. X-ray diffraction (XRD), which also includes new micro-XRD at both CSIRO and the Australian Synchrotron in Melbourne.
6. X-ray spectroscopy (XRF).
7. Magnetic susceptibility.
8. Electromagnetics (EM 38).
9. Acid base accounting analyses.
10. ICP-MS – for element analysis.

Note that items (5) and (10) incur CSIRO's external fee for service costs and items (6), (7) (8) and (9) do not include any element of profit above staff costs, on-costs and all CSIRO overheads.

Administration

Centre Director – Professor Rob Fitzpatrick - (50 % appointment with The University of Adelaide)

In running the ASSC, the Centre Director provides responsibility and accountability for activities such as:

- Reporting to UofA Management team, clients and other partners/associates (including provision of Strategic Plans, Quarterly Summary and Annual Reports).
- General correspondence, agendas/minutes, record keeping, invoicing, reports (e.g. establishment of an ASSC series of Activities and Reports)
- Business development.
- Contract negotiation, processing and approvals.
- Student supervision.
- Developing and running of national and international workshops and conferences.
- Developing and updating of ASSC UofA website and linkages to other websites (e.g. CSIRO)
- Publish scientific papers, books and major reviews (lead author on 5 publications and co-author of at least six others per year).
- Have regular meetings with staff to review progress and develop strategies.

- Be ambassador for the University of Adelaide, ASSC, Australia and internationally (i.e. to progress acid sulfate soil science in Australia and internationally).
- Continue to foster acid sulfate soil research and management strategies (e.g. NatCASS committee) and internationally (e.g. Member international committee on Acid Sulfate Soils).

Centre Deputy Director

Professor Paul Shand (CSIRO)
Prof. Paul Shand provides support and advice to the Director and also has responsibility and accountability for direct links to the CSIRO Land and Water Flagship via the Environmental Contaminant Mitigation and Technologies Program. Continue to foster acid sulfate soil research and management strategies across Australia (e.g. NatCASS committee) and internationally. Paul also provides links to Flinders University through hydrological projects such the Great Artesian Basin Project.

Management: Professor Philip Weinstein, Head of School of Biological Sciences (SBS)
The University of Adelaide will, under the leadership and responsibility of Prof Philip Weinstein, provide the ASSC with administrative support functions (Prof Rob Fitzpatrick will be line managed by Prof Philip Weinstein).

ASSC allocates funds provided by the University of Adelaide (e.g. ARC, consultancy profits), CSIRO and clients (e.g. South Australian State Government and Federal agencies and mineral exploration companies) to support and develop ASS-related research at the University of Adelaide and CSIRO.

The ASSC activities are all assessed on the basis of the following criteria:

- Publications in peer-reviewed journals, books and book chapters
- Education and Training: undergraduate (lectures and conduct field trips on acid sulfate soils in level 3 courses), postgraduate and postdoc training and completions of postgraduates (commencement of at least 5 postgraduate students).
- Adoption of management strategies developed by the ASSC by natural resource managers and industry
- Organisation and attendance at national and international conferences/workshops.

Support

ASSC PhD Students

- For domestic and international research students in form of operational funds ($3,000 per year) and top-up scholarships ($5,000 per year).

ASSC Fellows

- For postdoctoral researchers, the nature of support is flexible. Projects where ASSC funds are being leveraged by additional funding (such as in the ARC 25:75 APD scheme or Linkage Grants with Industry) are the most likely to be supported.

ASSC Ad Hoc Support

- The majority of ASSC funds are committed to the schemes specified above, all of which are flexible in the precise nature of support that they provide however, ASSC also retains some funds for *ad hoc* opportunities that do not fit within its other schemes, but will assist in achieving its goals.

Summary of Achievements: January 2012 – April 2015

The ASSC team has investigated a remarkably wide variety of coastal, inland and other acid sulfate soils (e.g. commercial salt fields during closure in flooded and dry bunded ponds; and minesite waste rock dumps). The team has been challenged and fascinated by the many and varied forms of ASS in Australia and overseas - some yet determined to identify, characterise, map, monitor and rehabilitate.

- Publications in peer-reviewed journals (X25), conference proceedings papers (X24), Encyclopedia chapters (X3), manuals (X2),book chapters (X4), Consulting reports (X9), Technical Reports (X22), conference abstracts (X8), newsletters (X5)
- National and International conferences/workshops: organized and/or presented several invited papers at international (X5) and national (X6) conferences and workshops.
- Undergraduate teaching and Honours (X2): Prof Fitzpatrick gave several lectures (Environmental Toxicology and Remediation) and conducted field trips on acid sulfate soils in level 3 courses.
- Postgraduate [PhD students] and postdoc training and completions of postgraduates: 10 postgraduate students working on various aspects of acid sulfate soils.
- Adoption of management strategies developed by the ASSC by natural resource managers and industry: between 2012 and 2014 via major reports and meetings to: (i) the MDBA and EPA of SA, (ii) the Coorong, Lower Lakes and Murray Mouth Program (CLLMM) within the Department of Environment, Water and Natural Resources (DEWNR), (iii) AARNet, (iv) Telstra, (v) Banrock Station and (vi) DMITRE & Ridley Land Corporation Pty Ltd (Ridley) Ridley Dry Creek mining tenements.

External income - via CSIRO Land and Water (Technical and Consulting reports)

Client		Funds ($)
MDBA - LMRIA	Assessment of re-flooded Acid Sulfate Soil environments at Long Flat, Jervois, Toora and Pompoota in the Lower Murray Reclaimed Irrigation Area (LMRIA): Sampling: June 2011 and April 2012	**47,300**
MDBA - LMRIA	Assessment of re-flooded Acid Sulfate Soil environments at Long Flat, Jervois, Toora and Pompoota in the Lower Murray Reclaimed Irrigation Area (LMRIA). Sampling: May 2013. Completed CSIRO Land and Water Science Report No 03/2012, June 2014. Rob Fitzpatrick and Luke Mosley. *Outputs*: Project provided PhD student (Chaolei Yuan) with ASS context, samples and training. Improved understanding of changes in ASS properties and soil organic carbon during periods of further rewetting (re-flooding and winter rainfall) and/or drying (drought and summer) in order to quantify: (i) Temporal and spatial variation, (ii) Hazards and impacts caused by ASS subtypes to LMRIA soil-landscapes and acidic drains (iii) Development of suitable sustainable management options.	**13,241**
DEWNR / CLLMM	Lower Lakes ASS monitoring. Completed Report CSIRO Land and Water: Baker, AKM, P. Shand and Fitzpatrick, RW, (2012) Recovery of re-flooded acid sulfate soil environments around Lakes Alexandrina and Albert, South Australia. CSIRO: Water for a Healthy Country National Research Flagship 417 pp	**190,000**
TOTAL		**250,541**

External income - via Adelaide Research & Innovation Pty Ltd (ARI), The University of Adelaide (Published Technical and Consulting reports)

Client	ASSC No	Project title / summary / report	Funds ($)
AARNet	001	Radio Telescope, Narrabri optical fibre cable soil survey and investigation: Completed (Report ASSC_001)	**30,000**
AARNet	010,019 026,027	Moree/ Narrabri/ Armidale optical fibre cable soil survey and investigation. Completed (Reports ASSC_010, 019; 026; 027)	**66,436**
AARNet	064	Mount Gambier to Keith optical fibre cable soil survey and investigation. Completed (Report ASSC_010)	**16,009**
Telstra	030	Improved Soil Assessment Manuals for Recognition of Australian Soils with Potential to cause Faults in Optical Fibre Cables. Completed (Publication of two manuals: ASSC_030 and 055)	**128,500**
Accolade Wines	035	Analysis of Acid Sulfate Soils at Banrock Station. *Outputs*: Project provided MSc student (Nilmini Jayalath) with ASS context, samples, training. Improved understanding of changes in ASS properties and soil organic carbon during periods of further environmental rewetting (re-flooding) and drying (draining) will be studied in order to quantify: (i) temporal and spatial variations of ASS and (ii) hazards and impacts caused by ASS to underpin sustainable management options.	**15,498**
Subtotal			***256,443***
Ridley Pty Ltd DMITRE	066	ASS assessment and research: to provide the Department of Manufacturing, Innovation, Trade, Resources and Energy (DMITRE) and & Ridley Land Corporation Pty Ltd (Ridley) strategic advice on the Acid Sulfate Soil risks and management strategies in the Ridley Dry Creek mining tenements: ASS assessment Tasks 1-10 for Section 4	**138,878**
Ridley/DMITRE	067a	ASS assessment: Tasks 1-4 for Section 2	**45,333**
Ridley/DMITRE	067b	ASS assessment: Tasks 5-10 for Section 2	**131,418**
Ridley/DMITRE	070	ASS assessment: Tasks 1-4 for Section 3	**48,165**
Ridley/DMITRE	072	ASS assessment: Tasks 1-6 ASS + hydrology for Section 2:	**123,694**
Ridley/DMITRE	078a	Part A: Bathymetric and Sub-bottom profile surveys of inundated ponds: CSIRO Land and Water/ ASSC	**185,773**
	078b	Part B: Task 1: Topographic survey (LiDAR) – Flinders Uni Task 2: Bathymetric/topographic survey of gypsum ponds: CSIRO	**114,753**
Ridley/DMITRE	097	ASS Assessment and monitoring in pond XF1	**176,733**
Subtotal			***964,747***
TOTAL			**1,221,191**

External income (secured - via research grants):

Funding source/project and duration	Funds ($)
ASSC_086: IRSP Grant (PIRSA) SARMS program from Jan 2015 to June 2017: SA River Murray Sustainability (SARMS) research project in the Lower Murray entitled: "Sustaining irrigation and soil condition under changing climate and land use in Lower Murray irrigation areas" funded by PIRSA via the South Australian River Murray Sustainability – Industry-led Research Sub-Program (IRSP)": PIRSA ---------- Industry partners ----------	 $368,960 $70,000
ASSC_098: Pre-ARC linkage grant funding from DEWNR - Jan 2015 to Jun 2015	$50,000
ASSC_085_ARC linkage grant DEWNR Jul 2015 to Jun 2018 is pending (ARC cash contribution: $592,318) DEWNR confirmed cash contribution: $305,500 (negotiate to proceed without ARC funding)	 $305,598
TOTAL	**$794,558**
GRAND TOTAL	**$2,266,289**

Long Term and Short Term Plans

Widening research scope: include organic matter turnover and acid mine drainage research.

Collaborations and connections: grow our existing strategic partnerships with national and international researchers, especially in Germany, Finland, Spain and USA.

Continuation of ASSC beyond the initial 3 year term: extension of Prof Rob Fitzpatrick's contract in the School of Biological Sciences, Department of Ecology and Environmental Science (EES) at The University of Adelaide for another 3.5 years from 30th January 2015 to 30th June 2018 (minimum 0.5FTE appointment using accumulated profits from external ARI contracts and research grant applications) to ensure continuing operation and research status of ASSC beyond the initial 3 year term appointment of the Director.

Succession Planning and Staff Development: appointment of additional staff to ensure continuing operation and research status of ASSC beyond the 6.5 year term appointment of the Director, Prof Rob Fitzpatrick such as:
(i) Dr Luke Mosley (Senior Research Associate, Level C) funded via industry and ARC to assist in ASS research in the LMRIA and Dry Creek,
(ii) Prof. Petra Marschner to provide support and advice to: (a) develop and oversee basic biological research and training, (b) assist in developing and maintaining international scientific links, (c) contribute to developing and maintaining the ASSC UofA website and linkages to other websites (e.g. CSIRO), (d) continue to provide close links to the School of Agriculture, Food & Wine through membership of the Soils Research group and
(iii) Prof. Paul Shand (Deputy Director) to continue to provide support and direct links to the CSIRO Land and Water Flagship.

Equipment and Facilities: continue to provide financial and in-kind support to UoA and other laboratories (e.g. CSIRO).

Learning and Teaching: Update and improvement of ASSC website at UoA to increase its exposure to national and international researchers and students.

Plans for 2014 - 2018

Lower Murray Reclaimed Irrigation Area (LMRIA): To continue research in the LMRIA, ASSC with several industry partners have secured a major grant ($368,960 PIRSA, $70,000 industry funding) via "SA River Murray Sustainability (SARMS)" research project entitled: "Sustaining irrigation and soil condition under changing climate and land use in Lower Murray irrigation areas (LMRIA)" funded by PIRSA via the South Australian River Murray Sustainability – Industry-led Research Sub-Program (IRSP). This new research project together with several other ongoing projects, which includes PhD students, will improve the understanding of changes in ASS properties and soil organic carbon during periods of further rewetting (re-flooding and winter rainfall) and/or drying (drought and summer) in order to quantify: (i) temporal and spatial variation of ASS, (ii) hazards and impacts caused by ASS subtypes to LMRIA soil-landscapes and acidic drains (iii) development of suitable sustainable management options.

Dry Creek salt fields: to provide the State Government and Ridley Land Corporation Pty Ltd (Ridley) with strategic advice on the ASS risks and management strategies in the Ridley Dry Creek mining tenements – by continuing research in all salt ponds to: (i) to assess the complex range of ASS materials, (ii) construct detailed ASS maps, (iii) construct ASS acidification / monosulfidic material hazard maps, (iv) construct detailed topographic maps (LiDAR via Flinders Uni), (v) construct detailed bathymetric and sub-surface layer maps (via CSIRO) and (vi) investigate tidal cycling to remediate hazardous iron monosulfide-rich sediments.

Profs Fitzpatrick & Prof Marschner, Drs Luke Mosley, Stuart Simpson, Brett Thomas and Murray Townsend have submitted an ARC Linkage Grant proposal (LP150100197) entitled: "Tidal cycling to remediate hazardous iron monosulfide-rich sediments" Submitted in November, 2014. (ARC Linkage = $592,318 ARC, $305,500 DEWNR) to continue research in the Dry Creek salt fields to June 2018.

Prof Fitzpatrick with several ASSC partners (CSIRO and consulting companies) will continue to undertake major ASS projects to provide the Department of Manufacturing, Innovation, Trade, Resources and Energy (DMITRE) and Ridley Land Corporation Pty Ltd (Ridley) with strategic advice on the Acid Sulfate Soil risks and management strategies in the Ridley Dry Creek mining tenements (abandoned salt evaporation ponds). Completed and future work will provide the bases to publish at least 5 journal papers.

Banrock Station: To underpin sustainable management options – by continuing research, which includes a Masters student, to improve the understanding of changes in ASS properties and soil organic carbon during periods of further environmental rewetting and drying in order to better quantify: (i) temporal and spatial variations of ASS and (ii) hazards and impacts caused by ASS.
Profs Marschner and Fitzpatrick will prepare an ARC Linkage Grant proposal entitled: "Does drying-induced acidification of wetland soils influence organic matter availability?"

Publish a comprehensive book and/or major review article on "Inland Acid Sulfate Soils" incorporating soil and hydrological features to overcome perceived barriers to adoption of best management practices. It will expand on the following previously published book, which is first comprehensive reference on the distribution, properties and management of inland ASS: Fitzpatrick R.W. and P. Shand. (Editors) (2008). Inland Acid Sulfate Soils across Australia. CRC LEME Open File Report No. 249 (Thematic Volume). CRC LEME, Perth, Australia. Cooperative Research Centre for Landscape Environments and Mineral Exploration (CRC LEME, Perth). 315 pp.: http://www.clw.csiro.au/publications/acid-sulfate-soils/ass-book/Inland-ASS-book-print.pdf [30MB]

AARNet and Telstra projects, which involved the development of an "Improved Soil Assessment Manual for Recognition of Australian Soils (including Acid Sulfate Soils) with Potential to cause Faults in Optical Fibre Cables". In addition, outcomes of this project will result in 3 journal papers and a possible future ARC linkage grant with the Prysmian Group (optical fibre manufactures) and The Institute for Photonics and Advanced Sensing at The University of Adelaide to commence collaboration to develop new optical fibre cable sensors for shrink-swelling soils and Acid Sulfate Soils.

ASS in "Australian Salt Lakes and Their Potential for Strategic Resources" associated groundwater systems will be further developed with the aim of assessing their potential for mining potash, lithium, boron and uranium (see http://www.ga.gov.au/minerals/projects/current-projects/mineral-systems-of-australia.html is at an advanced of development in collaboration with Geoscience Australia and Industry.

Co-ordinate, edit and publish Royal Society of South Australia Natural History volume on the Coorong, Lakes Alexandrina and Albert Ramsar site. Write chapters on Acid Sulfate Soils and Other Soils.

Establishment of a National and International collaborative Network

Contact has been made with the following national and international collaborators with the aim of including them as members, developing joint research projects and exchange of postgraduate students and researchers:

National

Dr Steve Appleyard and Stephen Wong: Department of Environment and Conservation, WA
Dr Liz Barnett: Department of Environment, Water and Natural Resources (DEWNR), SA
Dr Sarah Beavis: ANU, Canberra.
Dan Brough: DSITIA. Queensland
Prof. Freeman Cook, Freeman Cook & Associates Pty Ltd, Brisbane, Queensland
Doug Crawford: Department of Primary Industries, Victoria.
Dr. Brad Degens: Department of Water, WA
Dr Richard Doyle: The University of Tasmania
Doug Fotheringham: Department of Environment, Water and Natural Resources (DEWNR), SA
Prof. Andrea Gerson: Minerals and Materials Science & Technology, Mawson Institute, University of SA.
Gerard Grealish, The University of Adelaide, SA.
Jason Hill: Department of Natural Resources, Environment and the Arts, NT
Dr Steve Hill: Geological Survey, Department for Manufacturing, Innovation, Trade, Resources and Energy; SA
Dr John Hutson: Flinders University, SA
Warren Hicks: CSIRO Land and Water, Canberra.
John Keeling: Geological Survey, Department for Manufacturing, Innovation, Trade, Resources and Energy; SA
Rob Kingham: MDBA
Dr. Ben McDonald: CSIRO Canberra and currently working on an ACIAR project in Vietnam
Dr Angus McElnea: Department of Science, Information Technology, Innovation & the Arts (DSITIA), Queensland
Dr Luke Mosley: EPA, South Australia.
Rob Moreton, Department of Primary Industries, Parks, Water and Environment (DPIWE), Tasmania
Bernie Powell and Col Ahern: Consultants, former DSITIA. Queensland.
Mark Raven: CSIRO Land and Water, SA
A/Prof Rob Reid: The University of Adelaide, SA.
Dr Peter Self: CSIRO Land and Water, SA
Russell Seaman: Department of Environment, Water and Natural Resources (DEWNR), SA
Dr Stuart Simpson: CSIRO Land and Water, NSW
Dr Brett Thomas: Tonkin Consulting, SA
Dr Mark Thomas: CSIRO Land and Water, SA
Dr Mitch Tulau: Department of Environment, Climate Change and Water, NSW.
Robert G. Quirk: Consultant, NSW
Dr Luke Wallace: Geoscience Australia, Canberra

International

Dr Marcus Anda: Indonesian Center for Agricultural Land Resource Research / Development Indonesian Agency for Agricultural Research and Development, Ministry of Agriculture, Indonesia.
Professor Mats Åström: Linnaeus University, Sweden
Drs Anton Boman and Peter Eden: The Geological Survey of Finland, Finland
Professor Del Fanning: University of Maryland, USA
Dr Emmanuel Fritsch: Nouvelle-Calédonie, France
Prof. Dr Ingrid Koegel-Knabner, Centre of Technische Universität, München in Freising-Weihenstephan. Germany.
Prof Johannes Lehmann: Cornell University, USA
Prof Rosa Poch: Lleida University, Spain.
Professor Markku Yli-Halla: University of Helsinki, Finland.
Dr Renzhao Mao: Shijiazhuang Institute of Agricultural Modernization, Chinese Academy of Sciences, China.
Prof Mike D. Melville: Consultant, NSW/USA.
Dr Samira A. S. Omar: Kuwait Institute for Scientific Research, Kuwait
Dr Peter Österholm: Åbo Akademi University, Finland.
Dr Shabbir. A. Shahid: International Center for Biosaline Agriculture, Dubai , UAE
Professor Martin Rabenhorst: University of Maryland, USA
Profs Jo and Pete Smith: The University of Aberdeen, Scotland.
Dr M. A. Wilson: National Soil Survey Center, Lincoln, NE, USA