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This report has been prepared by
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Cover image: Photograph of Centre Staff and PhD Students, May 2014:
Back row, left to right: Gertrud Hatvani-Kovacs; Gabriele Fitzgerald; Robert Crocker; Atiq Zaman; John Devlin; Conrad Philipp; Mabel John; Vanessa Milen.
Front row, left to right: He He; Ehsan Sharifi; Christopher Thornton; Martijn Kuller.
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EXECUTIVE SUMMARY

The Zero Waste SA Research Centre is a multidisciplinary research centre based in the School of Art, Architecture and Design (AAD) in the University of South Australia. Originating in 2008, the Centre is the outcome of a collaborative partnership between the University of South Australia and Zero Waste SA. As such, the Centre’s research mission is to engage communities to reduce waste, material flows and over-consumption, through partnerships with industries and government, and to improve our capacity as a community to do so through collaborative interdisciplinary research, postgraduate education and advisory services.

2013-2014 has been a year of change for the ZWSA Research Centre. Professor Steffen Lehmann, the Director, resigned in May 2014, to take up a new appointment at Curtin University, and Dr Robert Crocker was appointed Acting Director in his place. This came towards the end of a year of considerable change (July 2013- June 2014). In June, 2013, the Centre joined the CRC for Low Carbon Living with its project on Urban Microclimates, which subsequently resulted in the appointment, in late 2013, of a Post-Doctoral Research Fellow, Dr Conrad Philipp, who is now coordinating this project across three partner universities. This project is now under the leadership of Professor John Boland, who has replaced Professor Lehmann as its Chief Investigator (with Robert Crocker as a participating Researcher). The Centre’s involvement in this project also led to the appointment of another talented HDR student, Ms Gertrud Hatvani-Kovacs, also in late 2013.

In the second half of 2012 the Centre established a relationship with Tianjin University in China, resulting in the creation of the China-Australia Centre for Sustainable Urban Development (CAC-SUD) within the ZWSA Centre, with Professor Lehmann as this joint Centre’s first UniSA-based Director from 2013. Since this time, CAC-SUD has continued to grow, attracting considerable matching seed funding from the Vice-Chancellor. Three of these projects are being carried out by staff from the AAD School who are researchers affiliated with the ZWSA Centre. Since Professor Lehmann’s departure, CAC-SUD is being co-directed by Dr Crocker and Professor Ravi Naidu from UniSA’s Division of IT, Engineering and the Environment.

In August 2013 the ZWSA Centre allocated seed-funding from its own funds to six interdisciplinary research projects across the university, several of which have subsequently attracted significant additional funding. In September 2013 the ZWSA Centre held its annual PhD Colloquium, which included a guest lecture by Professor Stuart White from the Institute for Sustainable Futures at the University of Technology, Sydney. This was followed in the same month by the launch, by the Vice Chancellor, Professor David Lloyd, and the Minister of the Environment, the Honourable Ian Hunter, of a collection of essays, Motivating Change: Sustainable Design and the Built Environment, co-edited by Robert Crocker and Steffen Lehmann, and published by Routledge.

The Centre’s involvement with the CRC for Low Carbon Living has led to further involvement with the same CRC’s ETWW demand forecasting project (managed by our partners in the School of Natural and Built Environments (NBE), and now the Adelaide Living Laboratories project. This project will integrate many of the findings of the CRC and try them out at a large mixed-use test site in Adelaide, Renewal SA’s development at Tonsley Park. As one of the main tasks of this project, the Centre will oversee a ‘Co-creation Model for Development’ led by Dr Robert Crocker and Dr Jane Andrew. The Industry Manager of this project, Mr Phil Donaldson, is housed at the Centre by the AAD School.

Following Professor Lehmann’s departure in early May, 2014, the Centre has been able to develop and commence a range of new initiatives, documented in this Annual Report, and engage with our partners in a proactive way. So this Annual Report also contains an overview of the strategic plan for
2014-2015, and a List of Activities approved by the Management and Advisory Boards for this period. These include an international conference and related design exhibition, ‘Unmaking Waste’, to be held in Adelaide in May 2015, an edited book project on reuse and consumption, and a number of additional projects emerging from a new Seed Funding round (commenced in August, 2014).

As Acting Director I am also pleased to announce that the Deputy Vice Chancellor, International and Advancement, Professor Nigel Relph, recently signed an official agreement for the School and Centre to become a ‘DESIS Lab’. DESIS is a prestigious international association of design schools engaged in education for sustainable design and social innovation. This new association will link the activities of the Centre and School with some of the most innovative projects in social innovation and sustainable design emerging from some of the best design schools in Europe, Asia and America, and provide us with a forum for our own projects, and for future research and design project partnerships.

I would like to thank the Advisory Board Chair, Mr Kelvin Trimper, and all members of the Advisory Board and Management Committee, including our Divisional Pro-Vice Chancellor, Professor Pal Ahluwalia, and Professor Mads Gaardboe, our Head of School, for their ongoing support at this time of change, and for the opportunity to serve as the Acting Director of the Centre. I would also like to thank our Research Assistant, Ms Katharine Thornton, and our administrative Centre Officer, Ms Vanessa Milen, for their efforts in supporting the Centre in an exciting phase of its development.

Dr Robert Crocker, Acting Director,
ZWSA Research Centre for Sustainable Design and Behaviour,
31 July 2014
THE CENTRE’S RESEARCH PRIORITIES

The Zero Waste SA Research Centre’s mission is to engage communities to reduce waste, material flows and over-consumption in partnership with industries and government, and to expand our capacity as a community to achieve the goals of Zero Waste through collaborative interdisciplinary research, postgraduate education and related advisory services.

The Centre’s key interdisciplinary research priorities are:

1. **Engaging Communities to generate Sustainable Consumption, Reduced Waste and Changed Behaviour**
   - Through our research, we aim to encourage pro-environmental behaviour and waste reduction across communities, institutions and industries.
   - We aim to explore the role of values and social innovation to change behaviour and develop more sustainable consumption practices across different groups and in different settings.
   - We aim to contribute to a reduction in consumption and waste, and the development of a circular economy.

2. **Developing Zero Waste Cities, Sustainable Urban Infrastructures and Supporting Systems**
   - We aim to research strategies to shape low carbon living through innovative building and precinct design in the urban environment.
   - This includes science-based adaptation strategies to reduce material flows, incorporating renewable energy systems and services.
   - We aim to understand urban micro-climates and develop predictive tools for the design of sustainable, zero waste cities and more resilient urban communities.

THE VALUES UNDERPINNING OUR RESEARCH ACTIVITIES

The research agenda of the Zero Waste SA Research Centre for Sustainable Design and Behaviour supports the University of South Australia’s values and goals, as outlined in *Horizon 2020* (2010) and in *Beyond the Horizon* (2013):

- **Scholarship:** we promote and sustain open intellectual enquiry characterised by high standards of ethics and integrity;
- **Engagement:** we value collaboration with private and public sectors and with local, national, and international stakeholders;
- **Social justice:** we are committed to furthering social justice at every level. We work with communities and minority groups/cultures to achieve a more harmonious Australian society;
- **Sustainability:** we conduct research that helps create environmentally and socially sustainable and thriving communities;
- **Innovation:** we focus on research that addresses the most complex problems faced by our communities and cities, for instance on the link between urbanisation and climate change;
- **Openness:** we embrace new perspectives that are multidisciplinary and reflect the diversity of our research mandate.
INTRODUCTION: A YEAR OF CHANGE, JULY 2013 - JUNE 2014

This Annual Report has been prepared by the Acting Director of the Zero Waste Research Centre for Sustainable Design and Behaviour in the University of South Australia, Dr Robert Crocker, with the assistance of Ms Katharine Thornton, the Centre’s Research Assistant, and Ms Vanessa Milen, the Centre’s Administrative Officer.

While every effort has been made here to provide accurate and useful information, it should be emphasised that before Ms Vanessa Milen’s appointment, in February, 2014, there was a four month hiatus in the Centre without any administrative report, a considerable time within the year covered by this Report.

The financial report in the Appendix contains only the status of the Centre’s finances on July 31, 2014, but not a full snapshot of the period covered by this report. Nevertheless, this is a full and accurate picture of the present finances of the Centre at July 31, 2014, confirmed by the Divisional finance team.

I would like to again thank the Advisory Board and Management Committee for their support and patience during the first few months of my taking on this role.

Dr Robert Crocker
Acting Director
RESEARCH PROJECTS AND ACTIVITIES

Large Ongoing Research Projects
In July 2013 the Centre joined the CRC for Low Carbon Living, with a project initiated by Professor Steffen Lehmann and our HDR student, Mr Ehsan Sharifi, whose PhD thesis, on public space and the urban heat island effect, became a part of the larger CRC project. Since then, we have been joined in this project by Dr Conrad Philipp, a geographer and expert in remote sensing and urban heat research, as Postdoctoral Research Fellow and Coordinator of the project. Following Professor Lehmann’s departure, Ehsan’s principal supervisor, Professor John Boland kindly agreed to become the Chief Investigator on the project.

1. CRC project (RP2005) 'Urban Micro Climates: Comparative Study of Major Contributors to the Urban Heat Island in three Australian cities (Sydney, Melbourne and Adelaide)'

Chief Investigator: Professor John Boland
Coordinator, Dr Conrad H. Philipp: Postdoctoral research fellow
Supporting Researcher: Dr Robert Crocker

The CRC project (RP2005) 'Urban Micro Climates: Comparative Study of Major Contributors to the Urban Heat Island in three Australian cities (Sydney, Melbourne and Adelaide)’ supports end user-driven research collaborations to address the major challenge of climate change facing Australia. Our researchers are dedicated to integrated building systems and engaged communities. This three-year long program (2013-2016) brings together the University of Melbourne, the University of New South Wales and the University of South Australia and eight industry/government partners to oversee research done by five PhD students aimed at identifying evidence-based urban strategies for decision makers and policy formulation to reduce heat stress in three Australian cities. See: www.lowcarbonlivingcrc.com.au

Dr Philipp is also undertaking a similar comparative project under the auspices of the China-Australia Centre: Urban heat investigation in China: comparative study of Tianjin, Shenzhen and Hong Kong in Cooperation with the China-Australia Centre for Sustainable Urban Development

This research project will investigate the urban heat impact resulting from the rapid growth of three different Chinese cities located in different climatic zones. This project is one of the selected research projects of the China-Australia Centre for Sustainable Urban Development. See: www.unisa.edu.au/Research/China-Australia-Centre-for-Sustainable-Urban-Development/

**Project Leaders: Professor Mike Taylor and Associate Professor Rocco Zito (BNE)**

Professor Lehmann was on the steering committee of this project, and was also supervising Mr He He, a PhD student based in the Centre and closely associated with this project. Following Professor Lehmann’s departure, the supervision of this student was moved to Professor John Boland, Dr Julia Piantadosi and Professor Taylor, all based in the Barbara Hardy Institute.

3. **Adelaide Living Laboratory Hub – Lochiel Park, Bowden and Tonsley: Co-creation Methodologies and Toolkit (RP3017)**

**Project Leaders: Dr Robert Crocker, Dr Jane Andrew and Mr Phil Donaldson**

The Living Laboratories project within the CRC for Low Carbon Living has been developed over the last two to three years by Professor Wasim Saman and colleagues in the School of Natural and Built Environments, in partnership with Renewal SA, the land management and development arm of the South Australian government. Represented by Mr Phil Donaldson, Renewal SA is especially interested in the outcomes from this co-creation project, since this will help integrate what has been learnt from the other projects into an iterative ‘tool kit’ or methodology that can be used by Renewal SA in the future. This will ensure the needs and expectations of the users of new low-carbon developments will be fully met, and this ‘tool kit’ can then be used in future developments. Officially starting in September, 2014, it is now (June) at the planning stage, and we are expecting to have at least one new PhD student working on this, with a new Postdoctoral Research Fellow coordinating the project from UniSA.

**Smaller Projects, 2013-2014**

**Seed Funding Projects 2013**

In July 2013, six projects proposed to the Centre were awarded seed-funding grants of $10,000 each. Of these six, four have resulted in a number of significant publications and further grant applications. Of the remaining two, the one led by Dr Don Cameron may progress to a patent and a larger grant through an industry partner. The remaining one (led by Dr Keri Chiveralls) was postponed to this year, due to a series of unavoidable delays. Following discussions with the researchers, this grant will be treated and assessed with the new round of seed-funding grant applications to be funded in September 2014. A summary of the grants awarded from the 2013 round and the outcomes from these grants so far, has been included in the appendix.

**Age-friendly Precinct Study for the City of Unley**

From February to June 2014, Mr Atiq U Zaman, our PhD candidate, worked on the project ‘Age-friendly Unley Central’, a precinct study about the factors required for active and engaged ageing in the City of Unley. The study developed strategies and a design tool for age-friendly residential precincts and mixed-use walkable neighbourhoods. A set of indicators for best practice planning and design was developed by Mr Zaman, and this will now be taken up in a larger UniSA project, conducted by researchers from the Centre for Work + Life and the School of Law, in which Mr Zaman will be able to participate. This study aims to develop a larger ‘ageing strategy’ for the City of Unley. It is hoped that results from this strategy can then be developed further in a similar project being conducted in Hong Kong by researchers at Hong Kong Polytechnic University.
Publication and Conference Projects (2013-2014)

In September, 2013, Dr Robert Crocker and Professor Steffen Lehmann’s edited volume, *Motivating Change: Sustainable Design and Behaviour in the Built Environment* (Routledge) was launched by the Vice Chancellor, Professor David Lloyd, and the Minister for the Environment, the Honourable Ian Hunter. Professor Lehmann’s edited volume, *Low Carbon Cities: Transforming Urban Systems* (Routledge) was completed in April 2014, and is due to be published in September, 2014.

Following Professor Lehmann’s departure in early May, a start was made on planning two other related projects, an international conference and exhibition project, ‘Unmaking Waste’, planned for May, 2015, and an edited book project on ‘Reuse’. The conference planned for May 2015, ‘Unmaking Waste: Transforming Consumption and Production in Time and Place’, along with a related public exhibition and several workshops, is already well under way, with one confirmed keynote speaker in Professor Stuart Walker of Lancaster University, the author of many books and essays on sustainable design, and another being Emeritus Professor Susan Strasser, author of the most cited social history waste, *Waste and Want*. The conference website should be ‘live’ by mid-August, 2014, when a call for papers will be circulated. This will be the Centre’s first international conference, and promises to be an exciting event (see appendix).

A volume of essays, to be edited by Dr Robert Crocker and Dr Keri Chiveralls, on ‘Reuse in an Accelerated World’, is at present under development and under discussion with publishers. It is planned to be published in the second half of 2015. At present it is hoped that this will appear as part of a new Routledge series to be edited by Professor Anthony Elliott, Director of the Hawke Research Institute. A call for contributions will be made in September. There may also be an additional book emerging from the ‘Unmaking Waste’ conference planned for May, 2015. This will probably be with Greenleaf UK, the publisher of Robert Crocker’s forthcoming book, *Somebody Else’s Problem: Consumerism, Sustainability and Design* (late 2015).
COLLABORATIVE ACTIVITIES IN RESEARCH

Introduction: Maintaining and Developing Partnerships
The Zero Waste SA Research Centre for Sustainable Design and Behaviour is a collaborative research centre and its success to date has depended on interdisciplinary collaborations with researchers across the university, with other universities, and with a number of significant industry partners. The Centre has always relied on its ability to pursue its mission through interdisciplinary collaborations, and as an incubator of new projects.

China-Australia Centre for Sustainable Urban Development (2013-2014)
The ZWSA Research Centre during the second half of 2013 was engaged in a number of important international initiatives. The first to be noted here was the further development of CAC-SUD, the China Australia Centre for Sustainable Urban Development, an important partnership between UniSA and Tianjin University which commenced in 2012. The Zero Waste SA Research Centre has been managing this new collaborative research Centre on behalf of the University.

In March and April 2014 Professor Lehmann took part in a delegation from UniSA to Tianjin, led by the Deputy Vice Chancellor (International and Advancement), Professor Nigel Relph, with nine other researchers from UniSA, including Dr Philipp from the Centre. These were in Tianjin to hold a Research Forum and Researcher Roundtables on eight joint research projects with Tianjin University. This visit to Tianjin also included a CAC-SUD Steering Committee Meeting, at which the Director was present. The Group Mission in April 2014 was fully funded through an ACSRF grant obtained by the Director.

The potential for joint research projects with selected Chinese partner universities, funded from Chinese sources, is significant. The Centre is now affiliated with Tianjin University through CAC-SUD, and related activities, as can be seen from the above, are growing. There are now also opportunities for joint PhD supervision with Tianjin University, Beijing Normal University and Hong Kong Polytechnic University (all partnered in various research activities with UniSA), and last year the Centre enjoyed hosting our first Chinese Post-Doctoral Fellow from Hong Kong Polytechnic, Dr Queena Qian.

While CAC-SUD is still under development, and the steering committee will meet again later in 2014 under the auspices of Professor Nigel Relph, Deputy Vice Chancellor (International and Advancement), a major project conducted by Dr Philipp, and several joint seed funding projects, are now underway, involving researchers from the Centre. These include ‘Material Flow, Resource Efficiency and Zero Waste Management for the City of Lhasa in Tibet’ (led by Dr Conrad Philipp and Mr Atiq Zaman), and ‘Timber High Rise: Prefabricated low carbon construction system for tall wooden buildings and urban infill’ (to be conducted by Dr Tim McGinley, Dr Julie Nichols and Dr Chris Brisbin, who are researchers associated with the Centre).

Agreement with DESIS (July 2014)
Further international links have also been more recently developed through the July 2014 signing of UniSA’s agreement with DESIS, noted above. This is an international association of design education institutions committed to projects in social innovation and sustainable design. A considerable proportion of their collective efforts overlap with our own, including a focus on ‘ageing and ingenuity’, ‘underserved communities’ and the conversion of manufacturing from individual products to services (see www.DESIS-network.org). Our agreement to formally join DESIS as a member organisation was signed by the Deputy Vice Chancellor (International and Advancement),
Professor Nigel Relph, in late July, and will greatly strengthen our links to other researchers and research projects worldwide. Our only obligation, as a member, is to put at least two exemplary projects on the DESIS website every year, something we are now working on. Every member also enjoys their own webpage, as a ‘Lab’, where other members can look at, and learn from, what the other members are doing (see www.desis-network.org/content/university-south-australia-desis-lab). This dramatically expands our opportunity for international collaborative ventures.

Scoping Study for a National Centre
In response to the Advisory Board’s interest in repositioning the research centre to engage with university, government, industry and community partners on a national level, the Centre’s Research Assistant (Katharine Thornton) in June commenced investigating the possibilities of such a future development. In consultation with the Acting Director of the Centre and the CEO of Zero Waste SA, Mr Vaughan Levitzke, Ms Thornton is drafting a short briefing paper summarising her findings, which she will develop into a draft for presentation to the Advisory Board in October. The hope is that this can then form the basis for a Business Plan later in the year. Thanks to Professor Ahluwalia’s enthusiasm for the scoping study, this research is being supported by a $2000 contribution from the Division of EASS.
PHD AND MASTERS PROGRAMS

PhD Research Program:
At 30 June 2014, the Centre has a total of 9 PhD candidates. These are working in areas closely aligned to the Centre’s research priorities:

- John Devlin: ‘Reducing the waste of a developing mega-city: Exploring pathways to zero waste in Jakarta’ (Supervisors: Dr Robert Crocker and Professor Abdul-Malik Simone).
- Doreen Donovan: ‘A desire for less: communicating notions of sustainable consumption through creative cultural production and visual activism in children’ (Supervisors: Dr Vicki Crowley and Dr Robert Crocker).
- Gabriele Fitzgerald: ‘A study of pro-environmental resource and waste management practices and the interface of community, family and work’ (Supervisors: Dr Robert Crocker and Dr Collette Snowden).
- He He: ‘Demand forecasting and greenhouse gas reductions for municipal waste management: toward the integration of the waste domain in a shared ETWW tool platform’ (Supervisors: Professor John Boland, Dr Julia Plantadosi and Adjunct Professor Mike Taylor).
- Mabel John: ‘A comparative analysis of existing and emerging public space networks: Case studies from Sydney, Hong Kong and Singapore’ (Supervisors: Associate Professor Christine Garnaut and Dr Alpana Sivam).
- Ehsan Sharifi: ‘Regenerative Public Space and the Urban Heat Island Effect: Mitigation and Adaptation Strategies in Three Selected Cities: Melbourne, Adelaide and Sydney’ (Supervisors: Professor John Boland and Dr Alpana Sivam).
- Christopher Thornton: ‘Sustainability and Consumption as problems of narrative discourse in communication design’ (Supervisors: Dr Robert Crocker and Associate Professor Anne Sharp).
- Atiq Uz Zaman: ‘A Strategic Waste Management Framework and Tool for the Development of Zero Waste Cities’ (Supervisors: Dr Robert Crocker and Prof Steffen Lehmann; anticipated completion, August-September 2014).

PhD Seminars and Research Training Activities
Apart from expert supervision, an important component of the PhD program in the Centre has been regular formal and informal presentations and round table seminars. While every candidate is expected to attend and present to at least one peer-reviewed conference a year, the former Director also initiated monthly meetings for the PhD students and a formal ‘annual PhD Colloquium’ in conjunction with the Centre and Barbara Hardy Institute (this was held in September 2013).

As Acting Director, I have been conscious of the students’ needs to engage more actively in more informal seminars, especially to help them with their critical reading and writing skills, and so instituted a series of Friday evening workshop-seminars. These are held fortnightly, with the intervening time spots (on Fridays between 4 and 6) given over to presentations about other research opportunities and events. This series of informal seminars commenced in May 2014.

The PhD students have also been involved with the PhD students from the Hawke Research Institute in planning and taking part in a postgraduate conference on Waste to be held in early December 2014. Since the Acting Director will be overseas when the conference is on, Mr Martin Freney, an Industrial Design lecturer from AAD, has kindly agreed to give a keynote for the Centre on his recently-completed Earthship project. There will also be a panel for our students at the Conference.
We are anticipating 3 more PhD students to arrive in 2015, including a CRC-linked PhD project on the ‘Co-Creation Methodology’ emerging from the ‘Adelaide Living Labs’ project (see above). We are also investigating creating an internship program for German postgraduate students at the Centre, supported by the German Federal Government via the DAAD scheme, commencing 2015.

**Master of Sustainable Design**

The Master of Sustainable Design program plays an important role in the Centre, both as a potential pathway for local and international students into our PhD program, and as a means of educating local and international designers in sustainable design. The Masters program has had close ties with the Centre for some time, with the former Director giving occasional lectures and workshops for the students, and the Centre, through the generosity of Zero Waste SA, hosting an annual prize for the best student thesis and studio project.

The Acting Director of the Centre, Dr Robert Crocker, has been involved with the program since its inception, and still teaches and supervises students in this Masters program. In May, when the Centre’s website was updated, it was decided that a direct link to the Masters be placed on the Centre website for the first time, along with another to our DESIS Lab website, where the most innovative projects involving masters and PhD students can be presented, either in Vimeos or in the standard powerpoint format favoured by DESIS. This small change to the website has the potential to alert potential students (domestic or international) to our activities, and to allow other DESIS members to see what we are doing in the Masters’ program. Amongst the many benefits of the Masters program for individual students is its value as a useful entry point to the PhD program in the Centre. A good example of this can be seen in the successful career of our PhD candidate, Mr Ehsan Sharifi, who graduated from the Masters program in 2011, and whose PhD is contributing to the CRC for Low Carbon Living project, ‘Urban Microclimates’.

**Student Award and Scholarship**

The annual Zero Waste SA Research Centre for Sustainable Design and Behaviour Student Prize, valued at $2,000, is a prize targetted at students enrolled in the final year of the Master of Sustainable Design Program in the School of Art, Architecture and Design. Ms Nadrah Wan Yusoff was awarded the 2014 Zero Waste SA Research Centre Student Prize for her project, *'Diversity and Heritage': The Value of the Traditional Settlement of Kampung Baru in Contemporary Kuala Lumpur.*’

The Zero Waste SA Pam Keating Memorial Scholarship is another important prize awarded by the Research Centre. This was established in memory of Pam Keating, a noted environmentalist and waste management expert, who passionately believed in the importance of reducing waste and its impact on our environment, and was committed to education and training for sustainability. The 2014 recipient of the Scholarship, valued at $10,000, was Mr Matiya Marovich-Tadic, a joint Master of Sustainable Design and Master of Architecture student, whose winning project was *'Food Centricity: Investigating the link between the urban fabric and socially and environmentally sustainable food systems’.*
CONFIRMED GRANTS

The ZWSA Research Centre is presently engaged in some large collaborative grants, as a result of the achievements of the Director and associated researchers:

CRC for Low Carbon Living $1,200,000 (600,000 cash)
‘Urban Micro Climates: Comparative Study of Sydney, Melbourne, Adelaide’
This will run from 2013 to 2016. Initiated by Professor Lehmann, it is now directed by Professor John Boland (Professor of Environmental Mathematics in the Barbara Hardy Institute), who is a close and valued researcher and supervisor in the Centre. This project has resulted in the appointment of Dr Conrad Philipp, as the Centre’s Post-Doctoral Research Fellow, who is coordinating it. Two PhD students involved in this project, Mr Ehsan Sharifi and Ms Gertrud Hatvani-Kovacs, are presently working with Dr Philipp on it. The project involves three universities and eight industry and government partners. Dr Robert Crocker, the Acting Director of the Centre, is now also a researcher on this project.

CRC for Low Carbon Living $950,000 (initial commitment, for a new PhD)
‘Adelaide Living Laboratories: A Co-Creation Toolkit’
This will run from 2015 to 2018, and will be led by Dr Robert Crocker, Dr Jane Andrew and Mr Phil Donaldson. The project is one of four tasks within the Adelaide Living Laboratories component of the CRC-LCL, the other three being coordinated by Dr Kathryn Davison from the School of Natural and Built Environments.

Smaller Grants
Age-friendly Precinct Study for the City of Unley (Mr Atiq Zaman) - $27,000
While this only ran for three months it is now being linked to a larger collaborative ‘ageing strategy’ for the City of Unley, and a Lane Ways project, to be managed by Mr Damian Madigan, an architecture lecturer in the AAD School. Acting rather like a Seed-Funding grant, this study has also opened the door to a larger study in Hong-Kong which is to commence later in 2014.

‘Industrial Symbiosis’ study for Zero Waste SA (Mr Martijn Kuller) - $40,000
This six-month project was conducted by our valued Research Assistant, Mr Martijn Kuller, and supervised by Mr Keith Jones of Zero Waste SA. It built on the work Martijn had done during his internship at Zero Waste SA in 2013, when he researched the potential for industrial symbiosis of the energy, water and waste streams in Adelaide’s metropolitan region as part of his Masters in Urban Environmental Management at the Netherlands’ Wageningen University. From January to June 2014, Martijn investigated the opportunities for industrial symbiosis in South Australia using Geo Information Systems (GIS).

CAC-SUD Seed-Fund: ‘Material Flows in Lhasa’ (Dr Conrad Philipp and Mr Atiq Zaman) - $15,000
This project has just commenced (July 2014), with the appointment of Mr Zaman as the Research Assistant. It is hoped that it will produce a Literature Review on the defined problem (waste problems in tourist destinations in China like Lhasa).

CAC-SUD Seed-Fund: ‘High-rise Timber Buildings’ (Dr Tim McGinley, Dr Julie Nichols and Dr Chris Brisbin) - $15,000
This project has just commenced (July 2014). Dr McGinley is an expert on IT design systems, while both Dr Nichols and Dr Brisbin have been designing with and using CLT in architectural studios for some time. It is hoped that this project, commencing with a literature review, will lead to a study of the use of computer based design software with CLT timber for high-rise buildings.
FUTURE DEVELOPMENTS (MAY 2014 - JULY 2014)

Preamble
From the second half of 2013 to the writing of this report, considerable changes occurred at both Zero Waste SA and the Zero Waste SA Research Centre. Ongoing administrative and financial changes to Zero Waste SA led to a considerable reduction in money available to run the Centre, from $200,000 in 2013-2014 to $80,000 for the year, 2014-2015. The departure of Professor Lehmann also required redefining the leadership of a number of ongoing research projects, including the CRC-LCL Urban Microclimates project. There were also no major new grants applied for in early 2014, which effectively intensified the financial pressures placed upon the Centre. In response, following extensive consultation with university and industry partners, including the leadership of Zero Waste SA and the Centre’s Advisory Board and Management Committee, the Acting Director developed four major initiatives to extend our presence as a Centre within and beyond the University and develop the capacity to bring in more funding from external sources. These are summarised below, while the relevant budget summaries can be found in the List of Approved Activities (2014-2015) in the Appendix.

1. A new Seed-Funding Round, targeted particularly at industry partnerships and narrowed to the stated research priorities of Zero Waste SA (although the budget was only $25,000, less than half the funds available in the last round, this has resulted in 15 applications). The winning applications will be decided in early September, 2014.

2. An international conference, ‘Unmaking Waste’, which will be associated with a publication and an exhibition, with a separate edited book on ‘Reuse’, for May, 2015. Although $20,000 has been budgeted for this, the conference is planned to be largely self-funding. Sponsorship will be sought from industry partners to assist with keynote travel and the associated exhibition (the concept for the conference is in the Appendix).

3. The low-cost strategy of an energetic development of Centre partnerships with other existing funded projects, and other local and international partnerships. The first of these is the second CRC-funded project, the ‘Co-Creation Toolkit’. This will bring a fully funded PhD student into the Centre. The second of these, still under discussion and development, is involvement with an Ageing strategy in the City of Unley, a project which we hope to develop and apply elsewhere. There are also others in the pipe-line, which will be followed up in due course.

4. Community engagement and professional outreach, involving new linkages to the Northern Alliance, including discussions for the development of a new professional education facility encompassing renewable energy and associated training; professional and educational advice provided to other institutions, including AUT (Auckland University of Technology) who are attempting to embed sustainability across their curriculum and professional practice (Acting Director invited to lead a workshop there in early September, 2014).
## Proposed ZW Research Centre Activities 2014-2015

<table>
<thead>
<tr>
<th>Activities</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Developing new directions</strong></td>
<td>Ongoing</td>
</tr>
<tr>
<td>- Refocusing website and content linking back to School, new links to Masters, DESIS and Zero Waste SA – emphasis on Sustainable Design / Behaviour / Design-led Social Innovation, less on Green Urbanism (though work on urban heat island effects highlighted)</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>CRC for Low Carbon Living Research Projects:</strong></td>
<td>Commencing</td>
</tr>
<tr>
<td>- 1. Urban Micro-Climates Project (Urban Heat Island Effects - Dr Conrad Phillip and Prof John Boland) – 2 PhD students in School</td>
<td>Ongoing</td>
</tr>
<tr>
<td>- 2. Adelaide Living Laboratories Project (Co-Design Model or Toolbox, Tonsley Park – Jane Andrew, Phil Donaldson) – 1 new PhD student for this project, commencing November 2014</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Seed Funding Grants and existing grants</strong></td>
<td>Applications to be assessed September (3 monthly reports)</td>
</tr>
<tr>
<td>- Call for SF already made (15 applications submitted) – will generate up to 10 new research projects, linking Staff, PhD Students, School and Industry Partners</td>
<td>Ongoing</td>
</tr>
<tr>
<td>- <strong>Outcomes</strong> – to be identified in application, e.g. further grants, applications, etc.</td>
<td>Call to be issued once publisher agrees</td>
</tr>
<tr>
<td>- <strong>Existing Grants</strong> to be further developed – relationship with Unley and Aged-Friendly Precincts (in collaboration with EASS)</td>
<td>Call to be issued Aug-Sept 2014</td>
</tr>
<tr>
<td><strong>Book Project</strong> – Robert Crocker and Keri Chiveralls editors – <em>Reuse and Repurposing in an Accelerated World</em> - call for contributions to be issued in late August, to complete mid-2015; at present negotiating with Routledge</td>
<td>Under development</td>
</tr>
<tr>
<td>- <strong>Conference</strong> – Robert Crocker, Convenor – <em>Unmaking Waste</em> – Stuart Walker and Susan Strasser as keynotes, 20—30 papers, plus exhibition, May 21-24, 2015; call for papers to go out next week – potential book project to come out of this</td>
<td>Under development</td>
</tr>
<tr>
<td>- Linked workshops, one by Stuart Walker, one by Angela Rutter (ACF)</td>
<td>Under development</td>
</tr>
<tr>
<td>- Linked Exhibitions – 6 designers plus videos of projects from staff and students</td>
<td>Under development</td>
</tr>
<tr>
<td><strong>DESIS</strong> – membership agreement signed by DVC in July – access to international partners, also showcases student, staff work</td>
<td>Ongoing</td>
</tr>
<tr>
<td>- Conference to be used to firm links with DESIS and Masters projects also to be used to firm and develop links</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>CAD-SUD</strong> – 2 projects restarted after some delay</td>
<td>June 2014</td>
</tr>
<tr>
<td><strong>Scoping study</strong> for a national ZW/green innovations research centre focused on material flows, behaviour change and consumption in the circular economy</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>PhD Students</strong> supervision and related activities – reading and writing group, 2 finishing at the moment, 3 starting next year</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

All of these cross-disciplinary collaborative research activities demonstrate that the ZWSA Research Centre is well placed as a thematically-based research unit to become an important part of the University’s new research strategy.
2014 SEED-FUNDING ROUND CALL (JULY)

On 24 June 2014 the Zero Waste SA Centre for Sustainable Design and Behaviour sent out a call for proposals for innovative, collaborative research projects, involving identified industry or community partners, within one of our two main research priority areas:

1. Engaging Communities in Sustainable Consumption: To encourage pro-environmental behaviour and waste reduction across communities, institutions and industries.

2. Developing Zero Waste Cities: Low carbon living and innovative building and precinct design, including adaptation strategies to reduce material flows.

The aim of this Seed Funding Scheme:

1. To encourage and support the development of larger collaborative research projects and to support quality publications;
2. To enhance the research capacity of our members and affiliated research partners, to develop competitive projects in national and international funding rounds;
3. To build interdisciplinary national and international research collaborations and relevant industry partnerships;
4. To enhance the research careers of early career researchers through partnerships with senior researchers and other researchers within our networks.

Application deadline has been set for Friday 01 August 2014, 5pm. Funding Announcement has been scheduled for Friday 05 September 2014.

Applications will be assessed by a selection panel:

1. Acting Director, Zero Waste SA Centre for Sustainable Design and Behaviour
2. Head of School, School of Art, Architecture and Design
3. Associate Head of School, Research, School of Art, Architecture and Design
4. Chair, Zero Waste SA, or appointed representative
5. Chair, Advisory Committee, Zero Waste SA Centre or appointed representative
6. Senior Business Development Manager, Division of Education, Arts and Social Sciences.
PROPOSED CONFERENCE (MAY 2015): Unmaking Waste: Transforming Production and Consumption in Time and Place

Waste-creation in our consumer society begins by devaluing what has been, or is still being, possessed or used. The value once associated with ‘owning’ some object or service is withdrawn, for a variety of reasons, often influenced by marketing or social competition, and then attributed perhaps to something else. Re-valuing waste will be fundamental in a circular economy.

Barriers to prematurely discarding or replacing goods have steadily fallen in recent years. Easy credit, low prices, instant online access to goods and services, continuous technological change and a 24 hour promotional media, all reinforce the ‘state of mind and way of life’ we now call global consumerism.

While much effort has gone into researching and implementing successful technical strategies for reducing waste and emissions through greater efficiencies in many domains, accelerating rates of consumption are undermining the positive impact of these efforts everywhere. While mainstream economists, corporations and governments may fear the consequences of a ‘slow down’ in our hyper-consumption, others have begun to look for different ways to change behaviour and reduce over-consumption and waste.

A growing cross-disciplinary body of research, often trialled in social innovation and sustainable design projects, has emerged in recent years, exploring new ways to reshape and reconnect production and consumption, to reduce the excesses of our ‘waste-making’. Taking waste seriously, as a misallocated resource and a socially devalued collection of materials, this conference seeks to explore new approaches to reduce the speed and volume of global over-consumption. It will be organised around four themes:

1. **Engaging Values and Innovative Practices**
   Most advertising and marketing seeks to make us aware of what we lack, especially in the eyes of others. Our daily lives are organised around routines influenced by an ambient ‘waste-making’ culture. Our decisions have immediate material consequences, and we often use an imagined future to override a supposedly imperfect present. How can we steer our cultural values away from the extrinsic individualism that characterizes consumerism towards a more ‘custodial’ valuing of possessions, places, environments and experiences?

2. **Engaging Communities through Social Innovation**
   Social innovation has been defined as a ‘process of inventing, securing support for, and implementing novel solutions to social needs and problems’ (Stanford SI Review 2003). This is now widely used by designers and others intent on helping communities discover and implement more sustainable ways of living, producing and consuming. How can social innovation be used to change or reduce accelerating consumerism and waste-making?

3. **Engaging Strategies for Designed Reuse**
   Reuse can subvert the consumerist preference for the ‘brand new’, and shift attention to what remains useful as well as beautiful over the longer term. In what ways and through what means can designed reuse be harnessed to slow or reshape consumerism? How can designers harness ‘waste’ to change production and consumption towards a more custodial, long-lasting, environmentally sensitive form of possession and use?

4. **Redesigning Urban Systems for Low Carbon Living**
   Many urban systems are wasteful, encouraging unsustainable energy use and material flows. Problems such as rising sea levels, extreme weather events, and the urban heat island effect, are amongst the most immediate effects of Climate Change. ‘Low carbon living’ promises a technologically integrated approach to reducing the impact of these problems in a systemic way. How can this approach be used to shift community expectations and wasteful practices? How can they be used to further a more resilient and sustainable circular economy?

Linked Exhibition, SASA gallery, opening 6th May, 2015

Featuring 4-6 commissioned designers and videos on social innovation / reuse projects. Official Opening 15th May, exhibition start date, May 6th.
GOVERNANCE

The Zero Waste SA Research Centre for Sustainable Design and Behaviour is located at City West Campus within the School of Art, Architecture and Design, in the Division of Education, Arts and Social Sciences in the University of South Australia. The Centre Director has a formal reporting relationship to the Head of School of Art, Architecture and Design, Professor Mads Gaardboe.

The ZWSA Centre is supported by a part-time Research Assistant, Ms Katharine Thornton, and a part-time administrative Centre Officer (currently Ms Vanessa Milen; previously Mrs Lily Stanley). The Centre is a collaborative research centre, and so has good working relationships with staff and researchers in the Art, Architecture and Design School, and across the University. The ZWSA Centre also relies upon administrative support from the School of Art, Architecture and Design, including supporting the progress of its 9 PhD students.

MANAGEMENT COMMITTEE

The Centre is managed by a full-time Director (presently an Acting Director at 0.7) who is responsible to the Head of School, Art, Architecture and Design, and reports to a Management Committee and an Advisory Board, both of which meet four times a year.

The Management Committee comprises key constituents as members, including Heads of Schools and the Executive Director of Zero Waste SA, to obtain feedback on its ongoing programmes and plans and to formulate new initiatives. The Management Committee also reports to the Zero Waste SA Research Centre Advisory Board.

At 30 June 2014, Management Committee members are:

1. Prof Pal Ahluwalia  Pro Vice Chancellor, Division of Education, Arts and Social Sciences
2. Ms Annie Campbell  Senior Business Development Manager, EASS
3. Prof Mads Gaardboe  Head of School, School of Art, Architecture and Design
4. Dr. Robert Crocker, Chair  Acting Director, Zero Waste SA Research Centre
5. Mr Vaughan Levitzke  Chief Executive, Zero Waste SA, Government of SA
6. Prof Kurt Lushington  Head of Discipline, Psychology
7. Prof Wasim Saman  Sustainable Energy Centre, Institute for Sustainable Systems and Technologies, now BHI
8. Prof Robert Short  Pro Vice Chancellor, Division of Information Technology, Engineering and Environment

Management Committee meetings scheduled in 2014: 14 March, 30 May, 29 August and 28 November.
ADVISORY BOARD

The Zero Waste SA Research Centre Advisory Board is the governing body of the Centre. It is a decision making committee with responsibility for overseeing the governance arrangements as detailed in the Funding Agreement between the Minister for Environment and Conservation and the University of South Australia. The role of the Advisory Board is to provide independent, expert, external advice. The Advisory Board meets four times a year at UniSA, City West Campus.

At 30 June 2014, Advisory Board members are:

1. Mr Greg Butler SANTFA
2. Ms Janet Dibb-Leigh Principal: jdl Consultancy
3. Dr Donna Ferretti Government of South Australia
4. Mr John Harry CEO: City of Salisbury
5. Ms Anne Harvey Pathways 16
6. Mr Mike Haywood Mike Haywood Consultancy
7. Prof Richard Head Deputy Vice Chancellor: Research and Innovation, UniSA
8. Dr Marcia Hewitt Director, Communications, Education and Partnerships: Zero Waste SA
9. Ms Cheryl Hill Foundation for Australia’s Most Endangered Species Inc. (FAME)
10. Dr. Robert Crocker Acting Director: ZWSA Research Centre
11. Mr Stuart Moseley Principal: Connor Holmes, President: UDIA
12. Mr Kelvin Trimper, Chair Kelvin Trimper Consulting

In attendance are Professor Pal Ahluwalia and Ms Annie Campbell.

Advisory Board meetings scheduled in 2014: 28 February, 23 May, 05 September and 12 December.
CORE PARTNER ORGANISATIONS AND PROJECT PARTNERS

The Centre aims to create long-term research partnerships and welcomes other potential collaborations with organisations pursuing mutual areas of interest.
APPENDICES

Appendix 1: List of approved activities for 2014-2015: presented to, and approved by, the ZWSA Research Centre Advisory Board (23 May 2014) and Management Committee (30 May 2014) by the Acting Director, Dr Robert Crocker.

Appendix 2: Financial Report at 30 June, 2014. Summary report of the ZWSA Research Centre finances as at 30 June 2014, kindly supplied by the Financial Team at the Division of EAS.

APPENDIX 1: LIST OF APPROVED ACTIVITIES, 2014-2015

As specified in the Agreement with Zero Waste SA, UniSA is eligible to invoice for expenses for activities approved by the Advisory Board of the Zero Waste SA Research Centre for Sustainable Design and Behaviour. In line with changes to Zero Waste SA and its impact on the Centre’s funding, the following activities have all been brought into line within an agreed projected budget and available funds, FY 2014-2015.

The following activities will be undertaken in FY 2014-2015:

<table>
<thead>
<tr>
<th>Items</th>
<th>Dates</th>
<th>Budget ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Training:</strong> PhD top-up stipend for PhD student research (J Devlin)</td>
<td>May 2015; May 2015</td>
<td>17,000; 2,000</td>
</tr>
<tr>
<td>ZWSA Centre Annual Student Prize</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. Capacity building</strong> (Centre marketing, grant applications, agreed one-off events, etc)</td>
<td>Ongoing</td>
<td>30,000</td>
</tr>
<tr>
<td><strong>3. Seed Funding Grants</strong> – Up to 6 X $5000 depending on value and potential of project</td>
<td>Call 15 June - 15 July 2014; 15 Sept 2014 (1st report); 15 Dec. 2014 (2nd); 15 March 2014 (3rd)</td>
<td>30,000</td>
</tr>
<tr>
<td>Requirements: identified partners &amp; cases, in industry, government or community;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas of focus: to be in line with Centre’s two priorities (in consultation with ZWSA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcomes: To be specified on form (e.g. paper, journal article, grant, report, etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. Presentations and Publications:</strong> 1 book project with Hawke; 1 postgrad conference on Waste with Hawke ($2000 contribution); 1 International Conference: peer-reviewed conference on behaviour change, (using DESIS); including ZW community-focused workshop; best papers submitted for review for publication in an edited book (via Greenleaf, or Hawke – discussion in progress); Online proceedings, publication of workshops for ZWSA (Conference to be self-funding or break even)</td>
<td>Cfp Sept 2014; Nov. 2014; Cfp Sept 2014; Papers Dec Conference earlyMay 2015; Bk 1 (Hawke) July; Bk 2 (ZW) Dec. 2015</td>
<td>20,000</td>
</tr>
<tr>
<td><strong>5. RA to be retained at 0.4:</strong> Ms Katharine Thornton as Centre research assistant, editor and grant writer, but at reduced fraction 0.4 ($40,000); priorities assisting Acting Director by developing National Centre project (DEASS to contribute $2000), developing grants, editing publications.</td>
<td>Ongoing till June 2015</td>
<td>35,000</td>
</tr>
</tbody>
</table>

**TOTAL** 134,000

In order to invoice we have been asked to give assurance that the $80,000 (approx.) committed would be used before 30 June 2015, along with the $55,000 (approx.) remaining in our accounts from 2013-2014. The EAS Business Development Office will invoice in early July 2014.

The List of Activities has to be approved by the Advisory Board; Zero Waste SA can accept a summary of how the $80,000 + $55,000 will be spent.

Dr Robert Crocker
Acting Director
## APPENDIX 2: FINANCIAL REPORT, JUNE 2014

Zero Waste SA Research Centre Balance Sheet as at 30 June 2014

<table>
<thead>
<tr>
<th>Date</th>
<th>Funds received from Zero Waste</th>
<th>Allocated to other Zero Waste projects in UniSA</th>
<th>Other Expenses</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 June 2013</td>
<td>$7,052.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 2013</td>
<td>$135,000.00</td>
<td>$-4,492.50 Return of Seed Funding credited to PG081474 in June 2013 (Advanced Processes in the Re-skinning of Buildings) which was subsequently aborted and funding refunded in July 2013</td>
<td>$28,042.00</td>
<td>$28,042.00</td>
</tr>
<tr>
<td></td>
<td>$28,042.00 Balance of 50% Seed Funding for 6 projects in 2013</td>
<td>CENTRE ACTIVITIES $30,000.00</td>
<td>$12,782.60</td>
<td>$23,014.03</td>
</tr>
<tr>
<td></td>
<td>50% scholarship payment to Mr John Devlin</td>
<td>STUDENT PRIZE AWARDED TO MS NADRAH WAN YUSOFF $2,000.00</td>
<td>$23,014.03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ZERO WASTE BOOK PROJECT – payment to editor Ms Katharine Thornton</td>
<td>Zero Waste Book Project – payment to editor Ms Katharine Thornton $23,014.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance as at 30 June 2014</td>
<td>$50,706.20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3: LIST OF CENTRE PUBLICATIONS, 2013-2014

Publications from the Zero Waste SA Research Centre for Sustainable Design and Behaviour (refereed), 2013 and 2014 (to July 31).

2013
Essays and Books


**Journal Articles**


**Conference Papers**


M. Reza Hosseini, Nicholas Chileshe, Raufdeen Rameezdeen and Steffen Lehmann, ‘Sensitizing the concept of Reverse Logistics (RL) for construction context’ at The International Conference on civil Engineering Architecture & Urban Sustainable Development, Tabriz, Iran, 18-19 December 2013.


Sandy Walker, ‘Specialized gaming controller providing haptic feedback to increase realism and sense of game-play, for children with Cerebral Palsy: Cerebral Palsy gaming controller design project’, 7th International Conference on Design Principles and Practices 2013, Chiba University, Japan.

2014

Essays and Books


Steffen Lehmann and Mabel John, 'Green Urbanism, zero waste and ecological connections'
in J. Byrne, J. Dodson and N. Sipe (eds), *Australian Environmental Planning*, Routledge, NY, 2014.


**Journal Articles**


**Conference Papers**

Mabel John, ‘Policy transference and design interplay - connecting people and ideas: Case studies from Sydney, Hong Kong and Singapore’, proceedings of the 2014 *Planning Institute of Australia National Congress*, Sydney.
