

WELCOME TO A NEW LOOK SEEK!

My name is Michelle de Souza and I am the Young Engineers Representative for Engineers Australia's Environmental College and the new editor of the college's newsletter SEEK i.e. Sustainability in Engineering Education and Knowledge.

I hope you enjoy this issue of SEEK – if you have any feedback or ideas for articles for future issues, please contact me at environmentalcollege@engineersaustralia.org.au



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IN THIS ISSUE OF SEEK...

ALTC project to define environmental engineering – Page 2
SSEE's 2009 conference *Solutions for a Sustainable Planet* – Page 3
New Engineers Australia Deputy President, David Hood – Page 4
Review of Engineers Australia's Stage 1 competencies – Page 5

A newsletter for environmental engineering educators from Engineers Australia's College of Environmental Engineers



CHAIRMAN'S MESSAGE

Julia Lamborn (Chairman, College of Environmental Engineers)

It is a great honour to take over as Chair of the College of Environmental Engineers. I will be ably supported by David Gamble, as Deputy Chair (he is the Immediate past National Chair of the Society of Sustainability and Environmental Engineering). I would like to thank David Hood for all his efforts on behalf of the college over the last 2 years and look forward to continuing to work with him in his role as immediate past chair, and as our new National Deputy President (National President in 2011). David is the first Environmental Engineer to be elected to EA's top office (see page 4).

This year will continue to be an exciting year for the College, as we have another year working on the ALTC project "Defining your Discipline". The College has been actively working on developing guidelines for environmental engineering programs, for many years. This information is used for the accreditation of environmental engineering programs and requirements for admission and auditing of environmental engineers to the National Professional Engineers Register.

The current guidelines for environmental engineering programs were first developed many years ago and it is time to review them. This project is enabling the college to consult with a much wider range of stakeholders across the country, than the College would have been able to do on its own.

There is an article later in this issue of SEEK that provides more detail regarding this project. I urge all college members, stakeholders and academics to become actively involved in the second round of forums that will be held in several cities around the country later this year. There will also be an opportunity to make written comments once the draft program outcomes have been developed. ... *continued page 2*

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ALTC'S PROJECT TO DEFINE ENVIRONMENTAL ENGINEERING

In 2009, Project Leaders David Dowling and Roger Hadgraft were awarded an Australian Learning and Teaching Council (ALTC) grant of \$200,000 to define an engineering discipline. The Environmental College was selected as the college to be involved with the project in 2010 and again for 2011.

The project is supported by the University of Southern Queensland, the University of Melbourne and Engineers Australia and addresses the need for exit standards in engineering. The aims of the project are:

1. to identify and develop an efficient, effective, and inclusive consultation process that can be used by discipline stake holder to define Graduate Outcomes for their discipline; and
2. to use the consultative process to deliver nationally agreed Graduate Outcomes for at least two engineering disciplines: one small discipline and one larger discipline.

Background

The Australian Federal Government, Engineering employers, and accrediting bodies, such as Engineers Australia, are all calling for more clearly defined 'program outcomes' or 'exit standards' for engineering programs. The aim of these exit standards is to improve:

- graduate employability skills;
- the quality of engineering programs;
- the international transferability of graduates and qualifications; and
- the marketability of Australia as a provider of high quality engineering education.

Project Strategy

The project was undertaken in 5 stages (3 stages completed in 2010 and 2 in 2011). During 2010, the project team developed and piloted a consultation process called "Defining Your Discipline" (DYD) with the Environmental College to produce a set of graduate outcomes for the discipline. ...continued page 4

CHAIRMAN'S MESSAGE ...

continued from Page 1

As many of you may be aware, the College has regularly run workshops at the Annual AAEE conference on environmental engineering education and accreditation. It is intended to run a workshop again at the 2011 conference in Perth, in December. This workshop will cover the outcomes of this project and the developed program outcomes. I look forward to meeting many of you as possible at this workshop and getting your input into this review process.

Following the outcomes from this ALTC project and the input gained from the AAEE workshop; it is envisaged that the new guidelines and program outcomes will be finalised, and then will be adopted by the college. These will then be used in future accreditations, and NPER applications and audits.

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Julia Lamborn is the Director, Industry Liaison, Faculty of Engineering and Industrial Sciences and the program coordinator for civil engineering at Swinburne University of Technology. She is a senior lecturer at Swinburne, where she has been for 21 years and prior to that she was the cooling tower thermal design engineer at the SECV for 8 years. She has expertise in landfills, waste management, environmental impact assessment, environmental engineering, engineering education, cooling towers and engineering heritage. She is very active for over 28 years in Engineers Australia and has held numerous state and national positions.

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SSEE 2009 International Conference: Solutions for a Sustainable Planet Melbourne, 23-24 November 2009

Review by Dr Gavin M. Mudd (Co-Chair)

The bi-annual conference of the Society for Sustainability and Environmental Engineering (SSEE) was held in Melbourne in November 2009. The conference is the premier event for SSEE members, and attracted over 200 delegates from across Australia and overseas. Despite the conference coinciding with the worst financial crisis in living memory, the strong attendance is testament to the diversity and commitment to sustainability in engineering practice.

The conference's major sponsor was the Victorian Department of Innovation, Industry and Regional Development (DIIRD), as well as support for some plenary talks from New Zealand Society for Sustainability Engineering & Science and VicRoads. In a first for SSEE and Engineers Australia, Engineers Without Borders Australia were a conference partner. A significant amount of in-kind support was also given by the conference committee and peer reviewers.

The conference theme was 'Solutions for a Sustainable Planet' – chosen to highlight the global nature of the many challenges we all face, but also the fact that as engineers it is our professional duty to provide leadership and solutions for these challenges. In this regard, the conference was a great success – showcasing the innovative thinking and practical solutions which can and are being implemented across Australia and the world.

The conference included about 90 presentations and 6 plenaries from:

- + Cheryl Batogol (Chair – Environment Protection Authority Victoria)
- + Bob Welsh (Chief Executive Officer, VicSuper)
- + Julian Turacek (Cleantech Ventures)
- + Dr Carol Boyle (Chair, New Zealand Society for Sustainability Engineering & Science)
- + Evan Thornley (Chief Executive Officer, Better Place Australia)
- + Daniel Almogor (Chief Executive Officer, Engineers Without Borders Australia)

In addition, a Climate Code Red workshop was run on the climate change challenge.

A key outcome of the collection of plenaries and talks, was the need to link technology with policy, that sustainable options are available, as well as the need to build alliances in business and finance to ensure economic viability. A key message was the importance of networks and alliances, often transcending traditional boundaries, silos and thinking, as a key part of sustainable solutions. All plenaries provided inspirational thinking and commitment, demonstrating that Australia and beyond is well placed to meet the problems of energy, water, technology, material resources and human development and indeed provide solutions for a sustainable planet.



The Society for Sustainability and Environmental Engineering (SSEE) brings you the SSEE 2011 International Conference "Escaping Silos" on the 24-26 October 2011 at the Brisbane Convention & Exhibition Centre. www.ssee2011conference.com

Abstracts are due by 14 February 2011. Inquiries: email ssee2011@icms.com.au or phone: +61 7 3844 1138.

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ALTC'S PROJECT TO DEFINE ENVIRONMENTAL ENGINEERING ... *continued from Page 2*

The consultation process included separate stakeholder workshops for academics and practitioners in every mainland state capital city. While nearly 60 people attended the workshops, the attendance at some workshops was disappointing. The workshops also failed to attract recent graduates, a key stakeholder group.

The participants were invited to develop lists of tasks they would expect graduates to be able to do under supervision in their first few years in the workforce. They were asked to look 5-10 years ahead, rather than define current requirements. This data was synthesized to develop a raw set of graduate outcomes, which was reviewed at a workshop at the AaeE conference in Sydney in December 2010.

During February 2011, a digital draft of the Environmental Engineering Graduate Outcomes Guide Booklet will be forwarded to members of the Environmental College and to each of the Environmental Engineering Schools (or Departments) for comment.

It is anticipated that the set of defined graduate outcomes for Environmental Engineering will be completed in March 2011 and will then be adopted by the Environmental College Board as a companion resource to the EA Stage 1 Competencies. Engineering Schools may then use them to support the review and revitalisation of their curriculum and to prepare for accreditation reviews by Engineers Australia.

This year the project will be covering threshold knowledge and skills, and real world learning activities to facilitate the integration of the Graduate Outcomes into university programs. The intention is to build on the mapping work already completed for environmental engineering and assemble best practice learning objectives, project materials and assessment tools.

Forums will be held in major capital cities to collect materials and to build the communities of practice required for their further development beyond 2011.

NEW ENGINEERS AUSTRALIA DEPUTY PRESIDENT – DAVID HOOD



Engineers Australia's National Congress has elected Adjunct Professor David Hood as the deputy president for 2011. At the end of this year, he will succeed Merv Lindsay as the national president for 2012.

David Hood is currently the chair of the Australian Green Infrastructure Council, but will step down from that position when he takes over the presidency.

His focus for the year will be on sustainability, population growth, biodiversity as well as reinvigorating Engineers Australia's College structure. He will also work on developing better support systems for regional engineers who are "enthusiastic but often feel unloved", he said. Engineers Australia has declared 2012 the Year of Regional Engineering.

David knows the workings of the Institution well, as he was the director for engineering practice at National Office in Canberra from 1993 to 2000.

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Sustainability in Engineering Education and Knowledge

Review of Engineers Australia Stage 1 Competencies

Another ALTC project has been undertaken on behalf of Engineers Australia by Robin King and Alan Bradley. This project reviewed the Stage 1 Competencies, which are used as part of the accreditation system for engineering programs in Australia. This funded ALTC project arising from the 2008 Engineers for the Future project included a sub-project area that addressed the revision of standards for engineering awards to underpin curriculum revision. A key component of this sub-project was the revision of the Stage 1 Competency Standards published by Engineers Australia.

These standards express expectations of graduate competencies at the occupational levels of Professional Engineer, Engineering Technologist and Engineering Officer, and referenced to the Graduate Profile Exemplar statements developed by the educational accords under the International Engineering Alliance. They also provide a template for universities to use in developing a specification of graduate outcome targets for engineering education programs in specific disciplines.

In revising the Stage 1 Competency Standards, the sub-project implementation team has consulted widely, and especially with the engineering education sector for initial input to the review. The Competency Standards were systematically reviewed by the various stakeholder groups, before presentation to the Engineers Australia Council in July 2010. Stakeholder groups included the Engineers Australia College Boards, the National Committee of Engineering Associates Australia and the National Committee of Engineering Technologists Australia, a wide range of industry representatives as well as the Associate Deans (Teaching and Learning) group identified by the Australian Council of Engineering Deans. A core reference group of seven university engineering schools was established to oversee the project.

Access the revised Engineers Australia Stage 1 Competencies at

<http://www.engineersaustralia.org.au>



24-26 October 2011
Brisbane - Australia

www.ssee2011conference.com



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