



The Sustainable Engineering Society

...engineering in harmony with ecology

SENG-WA Newsletter – September 2022

In this edition of the SENG WA newsletter, we bring you a report from the recent successful event 'Implementing Sustainability from an Indigenous Perspective,' looking at how EA's sustainability principles can be enriched through Caring for Country. Also included is an opinion piece by the SENG WA Chair, Barrett Moulds, on the recently passed Climate Change Bill 2022.

Two upcoming events of potential interest to SENG members are featured, including the use of technology for mine site remediation, and the importance of life cycle assessments for improving infrastructure sustainability.

WA businesses are also invited to let us know how they are being Sustainability Champions in their industry. Please [get in touch](#) if sustainability is at the heart of your business, or a business you know.

We hope you enjoy!

QUESTIONS AND ANSWERS

A 'Climate Change Challenges' series of webinars and forums was run in 2021 by the WA Division of Engineers Australia, in conjunction with the University of WA and Murdoch University.

During the series, over 100 questions or comments were submitted from around 1000 attendees. A 'Q&A' of the most pertinent, together with suggested answers, was put together by a group of senior EA members. The answers are NOT official EA answers; they are possible answers provided by the group as thought provokers.

In our Newsletter we will be publishing one Question and one possible Answer in each edition. We invite comments from our readers, a summary of which will be published in the following edition. Simple comments, such as agree/disagree are welcome, as are more detailed comments. These may be emailed to the [Q&A reply email](#).

This month, our question and possible answer is:

Q

Are there cross professional bodies for things like sustainability competencies?

A

It is a good question and, perhaps, EA can do more to pull together the professions to collectively respond to sustainability competencies. Universities provide the entry level learning for many professions to provide this service. EA sets competency standards for engineering but could do more to clarify the sustainability and climate change standards that apply across all engineering disciplines: this would be a good start.

SENG WA would love to hear from you about these questions and answers.

Contact us here: [Q&A reply email](#)

EVENT REPORT

IMPLEMENTING SUSTAINABILITY FROM AN INDIGENOUS PERSPECTIVE

An *Implementing Sustainability from an Indigenous Perspective* forum was held at the Perth auditorium of Engineers Australia (EA) on 26 July 2022. EA already has sustainability principles¹ but Indigenous perspectives could enrich these principles.

The forum was a collaboration by the WA College of Leadership and Management (CLM), the WA Sustainable Engineering Society (SENG) and the Indigenous Engineers Group (IEG) of EA.

There were 34 attendees including presenters Sharon Wood-Kenney (Community Engagement and Co-Design Consultant), Grant Maher (National Chair, EA Indigenous Engineers Group), Jodey Brockhurst (outgoing WA Division President), Tiina Ratamo (CLM) and David Rice (SENG).

After each presentation, their ideas were discussed around small tables. This was then followed by a panel discussion involving all attendees.

KEY IDEAS

The key ideas that arose in the table discussions are:

1. Caring for Country as a custodial species
2. Eco-centric co-design
3. Modify EA Charter
4. Journey together
5. Time to consult

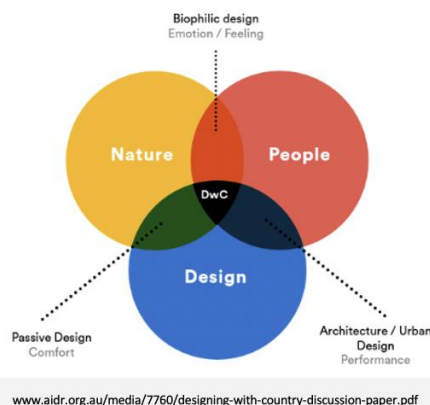
An explanation of each idea follows.

1. Caring for Country as a custodial species

Caring for Country includes 'care for Country,' 'look after Country' and 'designing with Country.' It also includes leaving a footprint to make the world a better place, treading lightly and promoting rejuvenation.

Clearly 'Country' has strong Indigenous cultural meaning and needs to be recognised. 'Country' means all that is within the area inhabited by a particular Indigenous group including people, animals, plants, water, earth and sky.

Designing² with Country (DwC) is illustrated by:



¹ Key EA sustainability principles are embedded in the EA Royal Charter, Strategy, Code of Ethics, and guidelines *Implementing Sustainability: Principles and Practice*, 2017

² *Designing with Country*, Discussion Paper by the Government Architect, NSW, 2020, is a good reference: <https://www.aidr.org.au/media/7760/designing-with-country-discussion-paper.pdf>

There were suggestions that, for Indigenous input, there should be some form of standard/guidelines/MoU/inclusion in the EA Code of Ethics. These need to recognise that Indigenous input must be from informed Indigenous representatives and that input from non-informed people can be harmful. How to find the right Indigenous representatives, those with the cultural authority for a particular geographic and knowledge area, should be followed up.

It was also suggested that 'Country' might replace 'environment' in EA's approach to sustainability. It is the forum organisers' view that 'environment' is already embedded in EA's top documents, it is already a term in broad public use and is included in much Federal and State legislation, so 'environment' should remain. Adding an explanation of 'Country' when talking about 'environment' in EA documents should be considered.

Custodial Species relates to the Indigenous view that we are here as a custodial species: as carers of everything; to look after all life including ourselves, fellow humans, animals, plants, insects, soil, water, and air. That is why we are here.

Care for Country and being a custodial species are fundamentally the same, so have been combined.

2. Eco-centric co-design

Eco-centric means understanding what is needed for a project before design concepts are begun, by gaining knowledge from the local people about what local materials, land use, air and water flows can be incorporated into the project.

It means eco-centric rather than ego-centric and this principle is illustrated by:

eco-centric



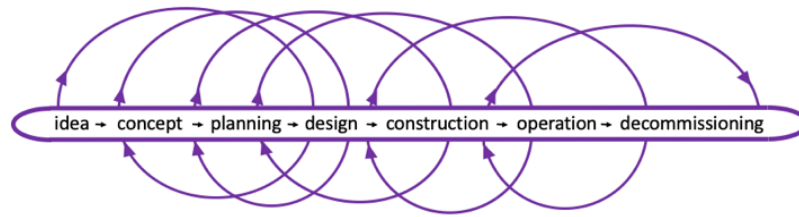
ego-centric



It was noted that ego-centric engineering has been around since 1920, when engineering was “for the benefit of mankind” and this anthropocentric view is still current (EA “for the benefit of the community” is discussed in 3 below).

Co-design is included in this idea. It refers to gaining knowledge from all community and stakeholders, particularly those in the Indigenous community with specific local knowledge. Co-design input, while vital at the concept stage, should be sought throughout a project. This is illustrated by:

Co-design throughout



3. Modify EA Charter

Why is EA here?

The current Royal Charter states that EA's purpose is 'for the benefit of the community.' This should be modified to 'for the benefit of the community **and the environment**' if it is to match the Indigenous concept of caring for Country.

This idea flows through to modifying the EA strategy to 'advancing society **and the environment**.' It also flows through to EA's Code of Ethics being 'for the benefit of the community **and the environment**' and 'balancing the needs of the present with the needs of future generations **of all species**'.

These modifications would not only bring the high-level EA documents in line with Indigenous wisdom, but also make them consistent with another part of the EA Code of Ethics that already recognises we should 'Practice engineering to foster the health, safety and wellbeing of the community and the environment', and the EA Sustainability Policy that already states, 'Sustainability means that future generations will enjoy environmental, social and economic conditions'. Specific ideas for adding to EA's *Implementing Sustainability: Principles and Practice* guidelines were also raised.

The forum participants showed significant support for institutional and structural changes; they considered these proposals would be positive changes to EA as an institution.

4. Journey Together

This includes collective journey, inclusive journey, working together and collaboration.

There was a strong feeling of being welcomed by the Indigenous speakers³ at the forum.

'Together' means both Indigenous and non-Indigenous people. It means making connections with a mixture of people in a respectful manner with the aim of benefitting generations to come.

5. Time to Consult

This includes the need for time to listen, to engage, and to build on capability.

This is difficult when many projects are time critical, but ways of doing this include planning in advance of detailed design and construction. One example provided was major roads in the Perth Metropolitan area where advanced planning, including community consultation, are often done many years, sometimes decades, before-hand. Another example was town planning, where the plan may be drawn up well before land use physically changes.

Some form of standard/guidelines/MoU for Indigenous input (see Caring for Country above) could also assist.

³ Indigenous speakers were Sharon Wood-Kenny, Grant Maher and Jodey Brockhurst

READER RESPONSE

We received the following response to the August newsletter piece on the State of the Environment report, released by the Federal Government at the end of July:

In reply to the question about what we thought of the SoE Report, I agree with Prof Peter Newman that it was mainly about all the problems, whereas it would have been beneficial to have also referenced some of the really good work that is happening to save parts of the environment. This could take it from 'it is all too hard' to 'there are some good things happening and maybe I can join in.'

Do you have anything else to add, or any comments on this month's content? Contact us via [email](#).

CLIMATE CHANGE BILL 2022

AN OPINION PIECE BY SENG MEMBER BARRETT MOULDS

The [Climate Change Bill 2022](#) has now passed both houses of Federal Parliament.

This proposed legislation:

- sets out Australia's greenhouse gas emissions reduction targets,
- provides for annual climate change statements, and
- confers advisory functions on the Climate Change Authority.

Emissions reduction targets

The emissions reduction targets are welcome progress in Australia's climate change policy and including them in legislation has the intended purpose of providing policy certainty for industry. Although the 2030 emissions reduction target of 43% is a significant improvement on the previous target of 26-28%, it still has an uncomfortably high probability of overshooting 1.5°C global warming. This risk perspective is highlighted in Engineers Australia's [Climate Change Position Statement](#):

"Our engineering perspective is grounded in science and concerned with the management of risk. From a risk perspective, when the projected consequence is unacceptable, what can be done should be done, unless proved that it is impracticable. Limiting warming to 1.5°C, with an 83 per cent likelihood of success, is the best case described by the IPCC. This case requires achievement of net zero by 2033 assuming a linear reduction in emissions. Such a low probability of success is unacceptable in any engineering code."

Annual Climate Change Statement

The Annual Climate Change Statement is welcomed because by annually assessing emission reduction effectiveness of the Commonwealth's policies it provides the opportunity for regular adjustment of policies in each sector to better align with the emission reduction targets.

Climate Change Authority to advise the Minister

The Climate Change Authority advising the Minister on greenhouse gas emissions reduction targets is welcomed because it provides independent advice and public reporting on social, employment and economic impacts of emissions reduction targets and related policies plus advice on physical impacts of climate change. This independent advice is expected to facilitate an evidence-based approach to both policy reform and adjustment of emissions reduction targets.

EVENTS

ENVIRONMENTAL TECHNOLOGY FOR EFFECTIVE MINE REHABILITATION



HOW NEW TECHNOLOGY IS SUPPORTING MINE REHABILITATION

Event by Dendra Systems

Date: Wed, 14 September 2022

Time: 4:30 – 7:00 PM AWST

Location: Basement at FLUX, 191 St Georges Terrace, Perth, WA 6000

This is the first in a series of networking events for mining, regulators and environmental professionals to explore and discuss the advances of technology in mine rehabilitation and closure facilitated by Dendra Systems. Dendra work with the WA mining community to support them to reach their environmental goals and rehabilitate their land by combining research in ecology and land restoration with artificial intelligence and drone technologies, to enable more efficient ecosystem restoration.

The event will feature a panel session with 3-4 panellists and moderated by a journalist from Australian Mining. The panel will discuss various topics related to mine rehabilitation and closure, exploring how technology has advanced these disciplines to help restore our natural land.

More information: <https://www.eventbrite.com/e/how-new-technology-is-supporting-mine-rehabilitation-tickets-392998528177>

LIFE CYCLE ASSESSMENT FOR IMPROVING SUSTAINABILITY OF INFRASTRUCTURE

Hybrid Event (Online and In Person) by SENG

Date: Monday, 17 October 2022

Time: 9.00 – 10.00 AM AWST

Location: EA WA Auditorium 712 Murray Street West Perth, Western Australia, 6005

To avoid worsening impacts of climate change, the world needs to rapidly transition to low carbon design. In this webinar, case studies will be presented on the use of life cycle assessment (LCA) by engineers, including carbon accounting, to inform design alternative reviews. The objective of presenting these case studies is to promote the benefits of LCA and educate engineers in the practice of carbon accounting.

More information: <https://www.engineersaustralia.org.au/event/2022/09/life-cycle-assessment-improving-sustainability-infrastructure-45066>

CSIRO GENCOST REPORT RELEASED

Renewables remain cheapest, but cost reductions on hold

Renewables remain the cheapest new-build electricity generation option in Australia, although inflation and supply chain disruptions will likely put cost reductions on hold for the next year, CSIRO's annual GenCost report has found.

Each year, CSIRO and the Australian Energy Market Operator (AEMO), work with industry to give an updated cost estimate for large-scale electricity generation in Australia. The report considers a range of future scenarios to understand the mix of technologies that may be adopted and costs for each of these possible pathways.

The 2021-22 report confirms past years' findings that wind and solar are the cheapest source of electricity generation and storage in Australia, even when considering additional integration costs arising due to the variable output of renewables, such as energy storage and transmission.

Full report: <https://www.csiro.au/en/news/news-releases/2022/gencost-2022>

ENERGY TRANSITION A 'RATCHET THAT TURNS ONE WAY' AS INDIAN-OWNED WEST AUSTRALIAN COAL MINE TEETERS ON THE BRINK

The looming demise of a loss-making coal mine in Western Australia is a microcosm of the industry's "dire" prospects as a fuel for electricity amid the rampant rise of renewable energy, an analyst says.

Expectations are growing that the Griffin Coal mine near Collie, about 180km south of Perth, will be tipped into receivership in coming days following years of heavy losses believed to exceed more than \$1 billion.

Lawyers for the Indian-owned mine have been fighting in the West Australian Supreme Court to stop a bid by its biggest customer, the Bluewaters power station, to take control of the operation.

The apparent preparedness of Griffin to appoint receivers brings to a head a long-running saga that has been playing out ever since Indian interests acquired the operation from Ric Stowe.

Full article: <https://www.abc.net.au/news/2022-09-08/indian-owned-wa-coal-mine-teeters-on-the-brink/101415394>

'SYNTHETIC MILK' MADE WITHOUT COWS MAY BE COMING TO SUPERMARKET SHELVES NEAR YOU

More than 80 per cent of the world's population regularly consume dairy products. There have been increasing calls to move beyond animal-based food systems to more sustainable forms of food production.

Synthetic milks offer dairy milk without concerns such as methane emissions or animal welfare. But it must overcome many challenges and pitfalls to become a fair, sustainable and viable alternative to animal-based milk.

Synthetic milk does not require cows or other animals. It can have the same biochemical make up as animal milk but is grown using an emerging biotechnology technique known as "precision fermentation" that produces biomass cultured from cells.

Full article: <https://www.abc.net.au/news/2022-08-30/synthetic-milk-made-without-cows-may-be-coming-to-supermarket/101383770>

CSIRO SEES DEFINING TRENDS

CSIRO have identified seven global megatrends with a couple having direct relation to sustainable engineering

“Our Future World” is a once-in-a-decade report from CSIRO explores the geopolitical, economic, social, technological and environmental forces unfolding around the world, predicting their likely impact on Australia’s people, businesses and governments.

The seven global megatrends are: Adapting to climate change; Leaner, cleaner and greener; The escalating health imperative; Geopolitical shifts; Diving into digital; Increasingly autonomous and Unlocking the human dimension.

Link to summary article: [CSIRO sees defining trends - WaterCareer](#)

Link to full CSIRO report: [Our Future World - CSIRO](#)

SUSTAINABILITY CHAMPIONS



WA SENG is giving companies a free opportunity to showcase their sustainable, innovative practices in our newsletter.

For a chance to be featured, please complete [this form](#).



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