The Sustainable Engineering Society

...engineering in harmony with ecology

# SENG-WA Newsletter - June 2023

In this edition of the SENG-WA newsletter, we present the first component of the recently released SENG Online Sustainability Training, a review of the recently held Regenerative Design of Drainage Infrastructure event, and an update on the UNEP Intergovernmental Negotiating Committee on Plastic Pollution.

We invite members to contribute to the SENG Accessible Sustainability Collection by submitting any relevant sustainability and climate change material useful for research, project work, policy development and education by emailing suggested links to seng.library@gmail.com.

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.

## 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** *Can we solve climate change without changing capitalism - consumerism, economic growth, and maximisation of short-term profits?*

**A** No. We must change the current notion of capitalism in which the over-riding role is maximisation of profit for the monetary benefit of shareholders. Conceptually it is relatively easy to argue that this ignores vital aspects such as social and environmental needs. In fact, the very concept of 'externalities' that economists use to describe events such as social and environmental impacts speaks volumes about the need for proper systems recognition. This means recognising that the economy and society are totally dependent on the environment, as are all known flora and fauna. This is made clear in EA's Implementing Sustainability: Principles and Practice, page 11.

We need capital, but we need to change from the notion of a capitalist, extractive economy to a 'regenerative' economy in which regeneration of our damaged environment and our problematic climate becomes the dominant role. This will be one of caring for the future; the future of the business and the environment in which business will have to continue to operate if it is to exist in the long term, plus the future of the society (including its workers and customers) within which business will have to operate. For more information see 'The Regenerative Economy: A Systems Approach To Sustainability,' World Engineering Convention 2019, available at:

https://eaondemand.engineersaustralia.org.au and search for 'regenerative economy.'

The problem is not one of logic. The problem is the widespread culture of 'take all' capitalism, especially in much of the Western World. The question is, can engineers lead in the promotion of a regenerative logic?

## EVENTS

### THOUGHT LEADERS SERIES: BUILDING OUR RENEWABLE FUTURE TOGETHER

**Webinar by Engineers Australia**

Date: 21 June 2023

Time: 12:30 – 02:00 PM AWST

Australia is undergoing a dramatic energy transition. While a key part of the transition requires more renewable energy generation (mainly solar and wind), these cannot be reliably delivered to consumers without significant development of long-term energy storage and network ancillary services.

Join EA for discussion on the impact on resources, the need for a skilled workforce and a strong partnership between government and industry to help drive the renewable future including hydropower.

Barton Maher, as the Assistant Chief Engineer at the Queensland Department of Regional Development, Manufacturing and Water is at the forefront of future developments in Queensland, a state which has recently committed to establishing a 50% renewable energy target by 2030. Barton will discuss the vital role the engineering industry, alongside government, plays in achieving this target.

Bob Tilbury will share his knowledge on how pumped hydropower represents an opportunity to create the storage and inertia to enable the renewable transition. His presentation will discuss the significant risks in development and delivery that have seen only two major projects committed to date.

More information: https://www.engineersaustralia.org.au/event/2023/05/thought-leaders-series-building-our-renewable-future-together-48916

### ONLINE SUSTAINABILITY TRAINING

In March 2019, a joint meeting of the Environmental College Board and the SENG National Committee decided that the best contribution the organisations could make to sustainability would be to provide a course for all engineers.

The first Module is called Defining the Problem and it has four components:

- Growth
- Biodiversity
- Global Warming
- Probability and Risk

Now the first component - Growth is complete, and available below.

While external costs were funded by SENG - we would like to acknowledge the enormous personal contributions of Lara Harland (Environmental College) and Steve Posselt (SENG). Without their drive and passion to deliver this project, what you see below would not be possible.

The next three components of Defining the Problem will be rolled out progressively over the next 6 months.

We hope you enjoy Growth and we look forward to your continued support so SENG can continue to deliver initiatives such as the online training.

Training: https://www.seng.org.au/Sustainabilty_E-Learning

*At this stage, there is no automatic certificate recognising CPD hours for completing the training, so please keep your own records of CPD hours. The Growth component of the training is equivalent to a minimum of 45 minutes, and potentially longer depending how much time each participant spends investigating the links to references provided.*

*Please note that it is permissible to share this Sustainability training link with colleagues and friends even if they are not members of SENG or Engineers Australia.*

## PREVIOUS EVENTS

### REGENERATIVE DESIGN OF DRAINAGE INFRASTRUCTURE

#### Event Report By Barrett Moulds

SENG-WA hosted an event on 1 June which used case studies of drainage upgrade projects to illustrate the concept of regenerative design.

Various types of projects can be considered as existing on a sustainability continuum. At the middle of this continuum are sustainable projects which are akin to the idea of net zero - where there is no net degradation of environmental, social and economic conditions. Although sustainability has become an increasing focus of projects, in many instances the reality is that projects are simply moving towards sustainability compared to a Business-as-Usual baseline, rather than truly achieving the goal of no net negative impact. The distinguishing feature of regenerative projects is that they provide significant net positive impact in each of the environmental, social and economic areas. It is important to showcase regenerative projects in order to inspire exceptional sustainability performance, so that our design teams can know that it is achievable, and it is also important so that we can redress historic damage (to the environment, society, and the economy) by helping reverse biodiversity decline, improving liveability, and providing economic uplift including sharing benefits with those less fortunate.


*Figure 1: Position of Regenerative projects on the Sustainability continuum*

The speakers were Georgina Best (Manager – Drainage and Liveable Communities & Water Sensitive Cities, Water Corporation of WA) and Amanda Best (Principal Engineer - Drainage and Liveable Communities, Water Corporation of WA).

They explained that historically, drainage design at the Water Corporation was focussed on the objectives of flow control and flood mitigation. Typical designs consisted of straight engineered channels, devoid of native vegetation and with the waterway regarded as a public safety risk which in many cases is fenced to exclude public access.

However, there are a number of pressures leading to that design approach to be questioned.

For example, changing urban form (higher density living) is resulting in a shortage of public open space and the urban heat effect.

This has resulted in an opportunity to provide local government with access to land reserved for drainage infrastructure which can be adapted to provide public open space, urban tree canopy, and improved liveability.

Local government receives economic benefits by obtaining access to land without having to purchase land, the water utility obtains economic benefits in the form of funding for revegetation works undertaken as part of the local government's urban tree canopy program and transformation of utilitarian drainage infrastructure to living streams provides an uplift in property values which provides economic benefit to the local residents.

Environmental benefits include restoration of habitat, improved biodiversity, improved micro-climate, and improved water quality especially downstream with reduced nutrient loads into rivers, plus in many instances use of nature-based solutions has lower or a net reduction of greenhouse gas emissions.

Social benefits from providing public with access to the natural environment include recreational opportunities which in combination with being amongst nature provides physical and mental health benefits.


*Figure 2: What a Water Sensitive City looks like*

A well-designed channel profile (refer below Figure 3) can provide further benefits once a diverse ecosystem of native vegetation establishes because little or no maintenance is required since the fringing trees provide shade that suppresses growth of invasive weed species, and there is no longer a need to mow the banks which is a feature of the engineered channels.

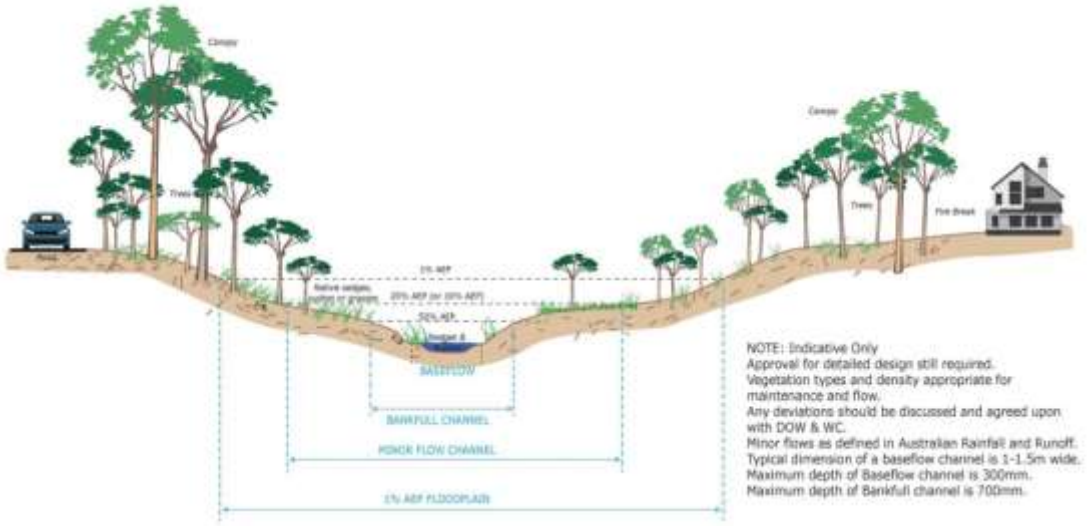


*Figure 3: Conceptual profile of stream channel*

One of the case studies showcased a rural drainage project:

Harvey River Habitat Restoration 2022 - YouTube

## UPDATES

### UNEP Intergovernmental Negotiating Committee on plastic pollution

**By Kala Senathirajah**

The second session of the UNEP Intergovernmental Negotiating Committee (INC-2) on plastic pollution took place at UNESCO in Paris, France from 28 May to 2 June 2023. The meeting was attended by representatives from over 185 countries and many non-governmental organisations including Engineers Australia. The main objective of the INC-2 was to make progress on the development of a legally binding international instrument to end plastic pollution.

There was broad agreement that the instrument should cover all types of plastic pollution throughout the value chain and that a range of measures to reduce plastics production and consumption, use of alternative materials, knowledge and technology transfer, capacity building, improve waste management, increase recycling (while noting that simply recycling and/or switching to alternative materials including bioplastics would not solve the problem). There was also agreement that businesses and industry should play a key role in reducing pollution with consideration for extended producer responsibility and provisions for financing implementation of measures needed to be included in the treaty.

Please contact SENG for the full update.

## NEWS

### Engineers Australia Fuel Efficiency Standard submission

Engineers Australia has completed its response to the consultation paper released by the Department of Infrastructure, Transport, Regional Development, Communication and the Arts. The Department is collecting information for the purpose of informing approaches to develop an Australian Fuel Efficiency Standard. SENG contributed to development of EA's submission as part of a multi-disciplinary working group.

EA Submission: https://www.engineersaustralia.org.au/sites/default/files/2023-05/Engineers-Australia-FES-submission-May-2023.pdf

More information: https://www.infrastructure.gov.au/have-your-say/fuel-efficiency-standard-cleaner-and-cheaper-run-cars-australia

### The National Electric Vehicle Strategy

The National Electric Vehicle Strategy (NEVS) has been released, setting 3 key objectives:

- Increase the supply of affordable and accessible Electric Vehicles (EVs).
- Establish the resources, systems and infrastructure to enable rapid EV uptake.
- Encourage increased EV demand.

NEVS aims reduce road emissions through increasing the uptake of EVs, increase the availability and choice of EVs on the market in Australia, as well as improving affordability of EVs. Key aspects will include establishing affordable charging infrastructure and viable local manufacturing and recycling pathways.

SENG contributed to Engineers Australia's submission during the public consultation for this strategy.

NEVS: https://www.dcceew.gov.au/sites/default/files/documents/national-electric-vehicle-strategy.pdf

More information: https://www.dcceew.gov.au/energy/transport/national-electric-vehicle-strategy

## HAVE YOUR SAY IN WA'S WASTE STRATEGY REVIEW

Western Australia's Waste Avoidance and Resource Recovery Strategy 2030 (waste strategy) sets out objectives and strategies for transitioning the state towards a circular economy.

Released in 2019, the strategy contains a vision for WA to become a sustainable, low-waste, circular economy in which public health and the environment are protected from the impacts of waste.

The Waste Authority is leading a review of the waste strategy. The review provides an opportunity to reflect on how it is performing, what is working, and what it could do differently.

The consultation is now open for comment, and if you would like your feedback to be included in the Engineers Australia - WA response – get in touch. Alternatively, you can provide feedback in your personal capacity.

Full article: https://consult.dwer.wa.gov.au/waste/have-your-say-in-wa-s-waste-strategy-review/

## THREE METRONET STATIONS ACHIEVE DESIGN REVIEW RATINGS

Three stations being built under the METRONET New Bayswater Station and Morley-Ellenbrook Line projects have achieved Green Star Design Review ratings and are all on track to receive a 5 Star Green Star – Railway Stations v1.1 rating.

Malaga Station, Ellenbrook Station and new Bayswater Station are the first railway stations in Western Australia to have achieved the Green Star Design Review ratings, ensuring sustainable design outcomes have been designed, ready for construction.

Subject to final certification, this means all three stations are set to represent 'Australian Excellence in Sustainable Design.' The Certification Trademark is registered by Green Building Council of Australia and delivers independent verification of sustainable outcomes in the design and construction of buildings.

Full article: https://www.metronet.wa.gov.au/news/latest-news/three-metronet-stations-achieve-design-review-ratings#

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