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The Chair
Australian Government Productivity Commission
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RE: Opportunities in the circular economy

Dear Chair and colleagues

1. Introduction

With my colleague Associate Professor Ke Xing, I wish to respond on behalf of the Sustainable infrastructure and Resource Management (SIRM) group within STEM, University of South Australia. I am an Adjunct Professor at UniSA, with a background in architecture, construction, planning and infrastructure, associated with a Sustainable Infrastructure and Resource Management (SIRM) Group. Previously, I led Strategic Asset Management within the SA Government - working cooperatively with agencies to better utilise and share their assets/properties. I have also been employed as a UN Advisor on Resource-Efficient and Sustainable Infrastructure within Asia, as well as undertaking missions and training on green development.

I have been at the forefront of introducing the circular economy (CE) concept within Australia and internationally, having a close relationship with the acknowledged founder Prof Walter R. Stahel whom I video-interviewed in Geneva in 2016. I undertook research with Interface Flor on providing modular carpets as a service, enabling take-back and reuse. Assoc Prof Xing and I then won the Arup 2017 Global Research Grant to examine application of CE principles to the built environment, which resulted in a mock-up 'cloud platform for reuse of building elements as a service', accompanied by research publications.

Assoc Prof Xing and I became aware of the limitations of CE policies and practices in Australia and elsewhere. In this regard, we are undertaking research on the emerging concept of 'sufficiency' as well as advising the Global Alliance for Building and Construction on its implications. I am a co-founder of the World Sufficiency Lab, Paris (https://www.thesufficiencylab.org), and, in conjunction with Assoc Prof Xing, have won two grants from the Australian-French Association for Research and Innovation (AFRAN) to examine adaptation of French 'sufficiency' policies and approaches to Australia.

We have closely examined the Terms of Reference and Scope of the Inquiry, as well as publications and communiques of the Ministerial Advisory Group (MAG) – including its Interim Report of April 2024. While taking a holistic view, our comments below focus upon the built environment (including infrastructure) wherein lies our main expertise and experience.

2. Opportunities in the circular economy

2.1 Lifting resource productivity and efficiency

We have noted the Inquiry's emphasis on supporting higher economic growth by lifting Australia's resource productivity and efficiency.

As also noted by MAG (Appendix 1), Australia has the 3rd highest footprint per capita in the

OECD[1], with the 4th lowest material productivity, while 70% of GHG is generated through material extraction, production, and use. While it is imperative to lift resource productivity and efficiency, we will argue below that this is not enough to address excessive resource consumption, its devastating impact upon biodiversity loss, and the climate emergency, especially carbon 'embodied' in extraction, production, and construction.

We also draw your attention to EU researchers e.g. European Environment Agency 2018 who have criticised the pursuit of policies and practices that expect economic growth can be 'decoupled' from damaging environmental impacts.
https://www.eea.europa.eu/publications/growth-without-economic-growth

2.2 Circularity not enough

In its 2024 Global Resources Outlook entitled '*Bend the Trend: Pathways to a liveable planet as resource use spikes'*, the UN International Resource Panel (IRP) highlighted an alarming statistic. From 2016-2021, the global population consumed over 75% of what it did for the entire 20th Century. In other words, our resource use has tripled over the past 50 years. It recommends (p. 14) that "Actions for the sustainable use and management of natural resources must place justice and sufficiency at the core".
https://www.resourcepanel.org/sites/default/files/documents/document/media/gro24_full_report_29feb_final_for_web.pdf

Moreover, as revealed by Circularity Gap reports, a CE alone is unlikely to be effective in reducing our material footprint – especially when this fails to recognise the need to Rethink, Refuse, and Reduce. Even the leading Ellen MacArthur Foundation (EMF) overlooks this necessity. Unsurprisingly, circularity has fallen over recent years in the EU and beyond, currently around 7½ %. As research has shown (e.g. Skene, K. 2018), *circularity/resource efficiency is ineffective in reducing resource consumption whilst demand continues to increase*. Any gains are surpassed by the increasing consumption.
https://www.proquest.com/docview/2010736371?parentSessionId=ecOO1lewruPbj5TFaqM27pyYP1CZYG97wnOqLdF1XhA%3D&sourcetype=Scholarly%20Journals

Our colleague Prof Walter R Stahel, recognised founder of the CE concept, highlighted the need to reduce material throughput via the related 'Lake Economy' concept. Regrettably, this has been conveniently overlooked within circularity policies in Australia and elsewhere.

Whilst the benefits of CE in emissions reduction are lauded in Australia and elsewhere, the IPCC 2022 Report on Climate Mitigation states (p.5-3): "Claims on the benefits of the circular economy and climate change mitigation have limited evidence". Rather, as the report also states (p. 5-3), "Rapid and deep changes in demand make it easier for every sector to reduce GHG emissions in the short and medium term". We will discuss this in the next section.

2.3 Sufficiency and circularity

The above-mentioned IRP 2024 report (p. 8) highlights the need for sufficiency strategies to curb overconsumption: "UNEP refers to a fair consumption space, that is, the need to curb overconsumption while ensuring consumption opportunities needed for meeting basic needs…."

Therefore, circularity should be paired with sufficiency, with sufficiency first – as well explained by our Paris colleague Dr Yamina Saheb, an IPCC lead author, in *'Sufficiency*

[1] Hickel et al. (2022) have pointed out in Fig 3 that Australia has the highest overshoot https://www.thelancet.com/pdfs/journals/lanplh/PIIS2542-5196(22)00044-4.pdf

and Circularity: the two overlooked decarbonisation strategies in the 'Fit for 55' Package". https://eeb.org/library/sufficiency-and-circularity-the-two-overlooked-decarbonisation-strategies-in-the-fit-for-55-package/

As defined by the IPCC 2022 report on climate mitigation (SPM-41), "Sufficiency policies are a set of measures and daily practices that avoid demand for energy, materials, land, and water while delivering human well-being for all within planetary boundaries".

Unlike concepts of Degrowth and Post-Growth that are widely discussed in EU and beyond, we wish to emphasise that Sufficiency is *not* aimed at reducing economic growth. This has been demonstrated by French economic modelling and by the French Negawatt Association, which points out the benefits of sufficiency and emphasises it is not an enemy of economic growth. https://negawatt.org/IMG/pdf/181029_energy-sufficiency_negawatt-scenario_eng.pdf

2.4 The built environment

According to our research, the greatest potential for Australia to improve materials productivity/efficiency, with absolute reductions in resource consumption and emissions via sufficiency, lie within the built environment sector.

As MAG has noted, the sector consumes 1/3 of global resources and is responsible for almost 40% of GHG emissions. Thus, we agree with its recommendation (2.6, p.26) for the strategic direction of CE to be incorporated in the Net Zero Plan for the Built Environment.

The abovementioned IPCC (2022) report, of which Dr Saheb is a lead author, highlighted that – with regard to the built environment - Sufficiency should be first in a Sufficiency-Efficiency-Renewables (SER) Framework. Sufficiency, which aims for avoiding the use of new resources and absolute reductions in consumption, is different from efficiency, which seeks to produce goods more efficiently.

Whilst the MAG Interim Report advocates refurbishment over demolition, the Australia property and construction industry is predicated on increased building activities, while vast tracts of largely commercial space remain underutilised or empty. This approach is now being questioned due to the acknowledged need to reduce 'upfront embodied carbon' associated with new construction. We note that the MAG report (p.25) advocates for circularity to be considered at the very commencement of projects. However, as the Arup/EMF Circular Economy Toolkit recommends, the need to build at all should be the first step: 'Build Nothing -Refuse New Construction'. https://ce-toolkit.dhub.arup.com/framework

We also point out that the Global Alliance for Building and Construction (Global ABC 2022) highlighted the growth in global built floor area, which surpasses any gains due to energy efficiency and renewables. The Alliance commissioned a report on 'Sufficiency in the built environment', which I was invited to review and write the foreword. The report will be released late September 2024.

International research by Aalborg University, Denmark, argues for top-down carbon budgets to be allocated to countries, cities, sectors, and even building projects according to need, while considering the historical emissions of OECD nations: https://vbn.aau.dk/en/publications/towards-embodied-carbon-benchmarks-for-buildings-in-europe-3-defi Such budgets would constrain the present overbuilding in Australia, with new proposals assessed broadly at the planning approval phase in relation to their impact upon the budget.

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3.0 Closing Comments

We have sought to raise some fundamental questions about Australian circular economy policies as currently configured, overlooking the need to avoid and reduce demand for resources including energy, materials, and water.

We have also highlighted recent thinking from the EU that emphasises that circularity and sufficiency should be paired, as part of 'Sufficiency First' approaches currently practised in France.

In addition, we have emphasised the urgent need to reduce upfront embodied carbon and resource consumption in the built environment, which is mainly associated with new builds. Policies for adaptive reuse and the like are unlikely to be effective while new builds are actively encouraged.

Although we have focussed on the built environment, the need to reduce overproduction also applies to other sectors. For example, the global fashion industry (including Australia, the highest consumer in the world) needs to halve its production of new fashions to reach the 1.5-degree target of the Paris Agreement.

Thanking you, kind regards

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