

Responsibly Sourced Materials in a Circular Built Environment Project Template

The Sustainable Buildings and Construction Programme (SBC) aims at improving the knowledge of sustainable construction and to support and mainstream sustainable building solutions. Through the programme, all major sustainable construction activities can be brought together under the same umbrella. The work involves sharing good practices, launching implementation projects, creating cooperation networks and committing actors around the world to sustainable construction. The purpose of this template is to capture, report and publish case studies related to circular economy in the built environment for the purpose of knowledge and information sharing including cross collaboration.

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The SBC Programme is one of six programmes under the One Planet Network (UN 10YFP).



One planet build with care

Please give us more information on the project.

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1. Title of project (e.g. Circular Economy Ownership Models: A view from South Africa Industry). *

Hume City Council

2. Region(s) of project *

- Africa
- Asia/Pacific
- Europe and Central Asia
- Latin America
- Middle East
- North America
- Central America
- Caribbean
- Global/All regions

3. Country/countries of project(s). (e.g. South Africa) *

Australia

4. Your name *

Priyanka Erasmus

5. Your organisation *

RMIT University

6. Other than the SBC Programme, is this project related to any of the other 10YFP/One Planet Network Programmes? *

- Sustainable Tourism Programme
- Consumer Information for SCP
- Sustainable Food Systems
- Sustainable Lifestyles and Education
- Sustainable Public Procurement
- Not related

7. If this case study is related to any other program, please list the program. *

No

8. Overview/Summary (1000 characters). (e.g. Waste materials are not remanufactured, reused or recycled successfully. This study focuses on the South African industry's view on composite waste. The study found that cost reduction was a major driver and sustainer for recycling of composites). *

Hume is a peri-urban city north of Melbourne that's home to over 240,000 residents, 15,000 businesses and the Tullamarine Airport. The northern part of the city is a designated 'growth corridor' and its expanding population and large industrial hubs have created the perfect testing ground for circular economy opportunities.

Hume City Council is recognised as a progressive municipality when it comes to implementing circularity, having commenced its journey more than two years ago. The council completed a business case for circularity in mid-2021, the first stage in its roadmap Towards Hume as a Circular City. The city is now embarking on a series of projects to engage with the community to realise its circular economy vision.

9. Keywords *

- Policies promoting circularity
- Construction and demolition waste management
- Design for disassembly, reuse and easy to recycle
- Adaptability, flexibility and refurbishment of buildings and neighbourhoods
- Sharing and multi-use of spaces
- Use of reused or recycled content in new products and buildings
- Circular water
- Circular energy
- Financing circular processes
- Reconstruction

9.1 If the keywords above are not adequate, please specify other keywords. *

manufacturing, transport, logistics, circular advantage.

10. Life Cycle Phase(s) *

- (re-)Manufacturing of building materials
- (re-)Design
- (re-)Build
- (re-)Use
- (re-)Purpose
- Dismantling

11. What do you want other people to know about your project? (e.g. To develop appropriate national models for circular economy, it is important to reduce cost for recycling composites to encourage South African companies to transition towards circular economy). *

Hume's circular economy journey began with an inter-departmental working group, convened by George in 2020. The Hume Circular Economy Sector (HCES) Working Group was made up of members from key council teams: Assets, Economic Development, Procurement, Strategic Planning, Sustainable Environment and Waste and Resource Recovery. The findings of the HCES working group were presented to Council in April 2021 when the proposition of Towards Hume as a Circular City was received positively and fully supported by Council. Instead of focusing their efforts on internal council education and policy development, they are looking outward to form external partnerships and collaborations.

12. What is the aim of the project (50 words/350 characters)?(e.g. To identify the drivers and sustainers for the South African industry to * consider reuse and recycling of production waste materials).

- Preparing a business case which looks at material flows across the city, completed August 2021.
- Community engagement and building awareness of the circular economy.
- Identifying circular economy training needs, developing short courses to meet these needs and planning various events to showcase the circular innovations that are already happening in the city.
- Establishing a Circular Economy Taskforce to provide a whole of community, business, education and government resource, providing strategic guidance to enable delivery of programs.
- Building on the success of the Circular Advantage training program for business, launched in 2020 in a collaborative partnership with the City of Kingston in Melbourne's south-east, by developing other training courses tailored for SMEs.
- Creating an environment for, and network of, Circular Champions and Pioneers.

13. Explain what is special/unique about this case? (1000 characters) (e.g. This case study focuses solely on composites. Apart from * the general reuses of recycled composites in a circular economy, it is also a good strategy to avoid or reduce high energy demand linked with the production of raw materials).

"We've got a very large industrial base in Hume. Approximately 50 per cent of the 15,000 businesses and 110,000 jobs in the region are in manufacturing, transport and logistics. Those sectors are absolutely ripe for exploring circularity as a means to improve their business processes in so many ways," George explains.

The Circular Business Network evolved from the Business Efficiency Network, which was set up in 2008 to engage with business on sustainability. This work has given Hume a head-start when it comes to getting support for circular economy initiatives.

Ian says the size of Hume's Economic Development team, which is some 20 people strong, also gives the council an advantage when it comes to resourcing new programs for business and gaining broad community outreach.

14. Year of delivery or ongoing?(e.g. 2018 or ongoing). *

Ongoing

15. What did the project achieve (1000 characters)? Please give an example.(e.g. The study identified that a large number of companies * in the South African industry experience a small percentage of composite production scrap material and that quality assurance of recycle and product certification for the composites was a major barrier. With these key identifications, the SA industry can conduct future research on how to overcome this barrier and would ensure the use of materials more efficiently to reduce production costs).

"The business case developed three different future scenarios. The first is 'business as usual' with a 'little bit of tweaking' scenario; the second takes a middle road with iterative improvements to current practices; and the third is a Circular City scenario which emphasises optimisation of existing resources, has strong innovation and really drives utilisation of circular principles that design out waste," George says. The program developed the Circular Advantage course.

16. Who was involved/who were your stakeholders, and what was their contribution? Please list the entire supply chain of * stakeholders/actors.(e.g. Directors and senior managers in South African composite material users sector).

The program is now in its second year with participants from industry, government, industry associations, social enterprises and non-profits across Australia. Getting local businesses involved in the program has been crucial to providing both education and a forum for collaboration.

17. What were the output(s)/outcome(s)? Please list examples of any outcomes achieved.(e.g. A purely theoretical study, but outcomes * are: 1. Identification of cost reduction as the biggest driver. 2. Sustainers for a circular economy cannot be assumed from a global perspective but have to consider the local environment. 3. The different ownership models could be assessed though detailed knowledge of the supply chain and composite volumes. 4. The need for quality assurance of recycle and to certify products incorporating recycle composites. 5. A large number of companies experience a relatively small percentage of composite production scrap material).

"The business case developed three different future scenarios. The first is 'business as usual' with a 'little bit of tweaking' scenario; the second takes a middle road with iterative improvements to current practices; and the third is a Circular City scenario which emphasises optimisation of existing resources, has strong innovation and really drives utilisation of circular principles that design out waste," George says.

18. Is the project replicable? If yes, how? (1000 characters)(e.g. Yes, with the application of similar cost reduction methods in different countries). *

Yes, can be replicated by other councils.

19. Is the project scalable? If so, please explain (1000 characters)?(e.g. Yes, it has not been implemented in South Africa yet as this is a purely theoretical study). *

Yes, it can be implemented by other councils.

20. What are the 3 main challenges (1000 characters) you encountered? And why?(e.g. Quality assurance of recyclate and to certify products incorporating recyclate composites,no consensus in the survey of composite manufacturing companies, government, local authority, product retailers/distributors, end users or third parties, should take responsibility for managing end-of-life product waste. Lack of QA for recyclate and product certification incorporating recyclate composites was a hindrance). *

1. Relatively high unemployment rate.
2. Language barrier - a sizeable community for whom English is not their first language.
3. Project still in its early stages.

21. What are the 3 main successes (1000 characters) of this study? And why?(e.g. 1. Circularity can be progressed in SA. 2. Identification of cost reduction as a driver and sustainer for CE. 3. Quality assurance for recyclate and product certification). *

"The business case developed three different future scenarios. The first is 'business as usual' with a 'little bit of tweaking' scenario; the second takes a middle road with iterative improvements to current practices; and the third is a Circular City scenario which emphasises optimisation of existing resources, has strong innovation and really drives utilisation of circular principles that design out waste," George says.

22. Please indicate the cost of the project in USD. *

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23. Would you like to add any other relevant information (1120 characters)?(e.g. While this study is purely theoretical, it mainly identified the drivers and sustainers in CE for composite material users and also elements that would encourage the adoption of CE in South Africa). *

In the Circular City scenario, the circular economy was estimated to increase real gross regional product (GRP) by 2.82 per cent, deliver an additional \$903 million, and create 1,500 jobs per year by 2040. It would also decrease waste to landfill by 4,500 tonnes and reduce council landfill disposal costs by \$12 million per year. On top of these economic and waste-reduction benefits, a Circular Hume would also result in significant reductions in greenhouse gas emissions, mitigating around 151 million tonnes of carbon per year.

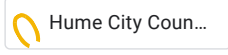
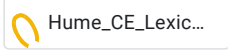
24. Are there any additional sources or websites for this project? If yes, please state. *

<https://acehub.org.au/knowledge-hub/case-studies/hume-city-council>

25. Has this project been verified? If yes, please state. If verification is ongoing, please indicate how long this may take.(e.g. Journal paper through RMIT University online library recources. Verified by one of the authors, namely Al Amin Mohamed Sultan). *

No

26. Please upload any relevant images for the project. Please acknowledge credits for the photographer or source of images.



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