

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). *

Lake Macquarie 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). *

The circular economy is gaining momentum in a regional city on Australia's east coast known for its beautiful lakes, wetlands, and beaches. Lake Macquarie City Council is the first in Australia to employ a full-time Circular Economy Lead and develop a circular economy policy and framework. The council is also working with other local councils and the business community to galvanise change in the region.

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. *

water, energy, waste, transport.

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). *

Developed by Circle Economy in the Netherlands, the City Scan is a tool that helps local governments understand the material flows in their region to identify priority sectors and materials for potential circular economy interventions. For Lake Mac, the City Scan exercise will help quantify problem areas as well as the potential benefits of circular solutions. The council is also working with ACE Hub Technical Supporters Edge Environment to develop a tool that demonstrates the environmental and cost benefits of procuring circular materials for public infrastructure projects such as laying new roads.

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).

Policy – developing circular economy policy and framework.

Materials – understanding the impacts of materials and coming up with strategies to reduce reliance on virgin, high carbon materials.

Innovation – building an enabling ecosystem for businesses in the region to embrace circular principles.

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).

Developed by Circle Economy in the Netherlands, the City Scan is a tool that helps local governments understand the material flows in their region to identify priority sectors and materials for potential circular economy interventions. For Lake Mac, the City Scan exercise will help quantify problem areas as well as the potential benefits of circular solutions. The council is also working with ACE Hub Technical Supporters Edge Environment to develop a tool that demonstrates the environmental and cost benefits of procuring circular materials for public infrastructure projects such as laying new roads. When it comes to innovation, Debbie is working with the Hunter Joint Organisation to engage councils and businesses across the Hunter and Central Coast region in circular initiatives.

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).

While Lake Mac's circular economy projects are still in the early stages, they are already generating activity right across the Hunter region.

"We've managed to create significant momentum in the circular economy space that the region can leverage for future projects," Debbie says.

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).

Local government procurement, council and businesses.

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).

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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, can be implemented by other councils.

20. What are the 3 main challenges (1000 characters) you encountered? And why?(e.g. Quality assurance of recycle and to certify products incorporating recycle 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 recycle and product certification incorporating recycle composites was a hindrance). *

The challenge however is getting people with different job descriptions, objectives and budgets to collaborate on solving problems that cross department boundaries and embrace systems thinking. The siloed style of working often found in local government and budget tribalism are two things Debbie says we must cut through for circular economy work to be successful. Barriers to implementing solutions at scale: procurement and specifications/regulations, and procurement processes.

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 recycle and product certification). *

While Lake Mac's circular economy projects are still in the early stages, they are already generating activity right across the Hunter region. But has been successful in setting up pilot projects to trail new circular materials in the past and Debbie is now working through the challenge of adopting these processes more widely

"We've managed to create significant momentum in the circular economy space that the region can leverage for future projects," Debbie 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). *

Lake Mac's circular economy policy and framework are a starting point for other council teams to develop more specific circular economy plans. The resources have been made open source so that other councils can also use them as guides for their own projects.

Debbie says circular economy plans need to be tailored to the specific problem they are trying to address and is working with Lake Mac's tourism, infrastructure and procurement teams to define goals and targets. She says it is important for each of these groups to own their plans by setting their own KPIs and her role is a supportive and advisory one.


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

<https://acehub.org.au/knowledge-hub/case-studies/lake-macquarie-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 resources. 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.

 Lake Macquarie ...

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