

Circularity in Africa: Built Environment



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Case Study

MycoTile

Speaker:
Mtamu Kililo
Kenya

MycoTile offers a high performance and cheaper alternative to traditional building materials. They use a carbon negative process to bond agricultural waste with mushroom mycelium. The product is denatured through heat treatment in order to inhibit mycelium growth. Their first product was suspended ceiling panels, which have superior acoustic performance and fire-retardant properties compared to the available alternatives.



Case Study

RICA - MASS

Speaker:
Noella Nibakuze
Rwanda

The Rwanda Institute for Conservation Agriculture – projected to be the first climate-positive university in the world – is designed to train Rwanda's next generation of leaders in agriculture while supporting national priorities for agricultural development. For this project, MASS Design Group designed, engineered, prototyped, and tested local, low embodied-carbon materials, including timber roof structure, rammed earth, and compressed stabilized earth block.

African Workshop Series

As a co-host of the **World Circular Economy Forum 2022** (WCEF2022), the **African Circular Economy Network** (ACEN) is running **Preparatory Workshops** based on the African Circular Economy Alliance (ACEA)'s five big bets. These workshops aim to create an enabling environment for the transition to a circular economy and to create momentum toward the main forum and **African Studios** taking place in 2022.

Session Summary

Africa's population is growing exponentially, and most of the infrastructure needed for this growth has not yet been developed. There's a unique opportunity for the continent to design a circular built environment from the ground up. During this session, the opportunities in the built environment and the biggest barriers hindering circular progress in the industry were discussed.

Participants from SMMEs, private and international organisations, including participants from the World Green Building Council, the World Economic Forum and various African Ministries attended the session



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The session started with two case studies. Firstly, Mycotile from Kenya, which produces locally alternative building materials from agricultural waste and fungal mycelium, offering a high-performance fire-resistant building material, presented their case study. Secondly, the MASS Design Group presented The Rwanda Institute for Conservation Agriculture (RICA), which aims to be the world's first climate-positive university.

The panel discussion started off by stating the great urgency and need for a circular and sustainable built environment on a rapidly growing continent. With a circular approach, a climate-wise built environment can be developed, supporting Africans in job creation and improved livelihoods.

Resources and Case Studies:

- African Circular Economy Alliance Report: **The Five Big Bets for the Circular Economy in Africa**
- Ellen MacArthur Foundation Report: **Circular Economy in Africa: Built Environment**
- A study on the State of **Play for the Circular Built Environment in Africa**
- Africa's greenest hotel: **The Hotel Verde Cape Town**
- **Eco Circular Solution Provider Ltd** use paper waste to produce ceiling solutions for homes and offices
- **Eastgate in Zimbabwe** was inspired by the ventilation of termite mounds

“We need to unlearn a lot of the stuff that we have been doing”

- **Chris Whyte**

The greatest barriers to transitioning to a regenerative built environment using locally manufactured circular materials are the lack of enabling policies and out-of-date building standards. Regulations and policies for the built environment need to be updated, but policymakers have a knowledge gap on what a circular and regenerative built environment entails. The case study, Mycotile, explained that they overcame the challenge of certifying their alternative materials by testing these materials at certified labs and ensuring they are above the benchmark of the Kenyan certification standards.

There was consensus that to change the current systems based on unsustainable practices, it is crucial to step back and define what we want the built environment to look like five to ten years from now and develop a roadmap towards a truly circular and regenerative built environment.

Full Recording

For more information or to get involved, contact us at:
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