

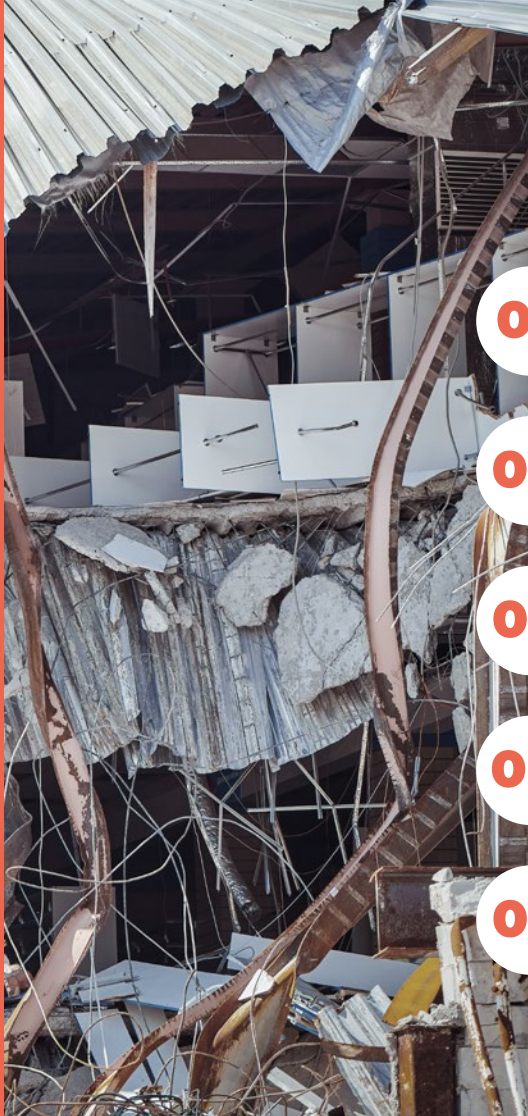


GreenCape



'Building' a circular economy

Reuse of construction and demolition waste in the built environment sector



1 Key Insights

01

In Cape Town, construction and demolition waste (C&DW) is generated in large volumes, presenting a challenge for landfill sites that are already nearing capacity;

02

However, several end-markets have been developed for high-value materials derived from C&DW, including builder's rubble, glass, non-ferrous metal, paper and cardboard.

03

Smaller items, of a lower value, are typically discarded despite being salvageable and reusable.

04

Creating a circular economy for C&DW not only reduces pressure on landfills, but it also creates additional jobs along the value chain.

05

By extracting smaller C&DW items that were previously sent to landfill, a second-hand building material store - The Real Deal 2 Cheap, a secondary material reseller company, have been able to appoint full-time and part-time staff that work across the sales, administration and procurement departments.

2 Purpose

C&DW is generated in large volumes, typically in urban areas where development is more rapid and consistent, and where brownfield developments are more prominent than greenfield developments.

Over time, several end-markets have been developed for high-value materials derived from C&DW, which is mostly comprised of builder's rubble, glass, non-ferrous metal, paper and cardboard. However, materials with a lower value, or that are available in small quantities, are often discarded as they are more difficult to access and process at scale. In many instances, items removed from residential homes and office buildings are salvageable, and can be repaired and reused instead of being recycled or sent to landfill.

A small business, The Real Deal 2 Cheap, identified a gap in the market: an opportunity to create a circular economy with the resale of salvageable items to other businesses in the construction sector, and to the public.

A circular economy keeps products, components, and materials at their highest level of use and/or value for as long as possible.



It is written for:

- Businesses in the construction sector wanting to find alternatives to landfill for their demolition waste.
- Businesses in the construction sector wanting to generate an income from their waste.
- Organisations wanting to understand how circular economy initiatives can be successfully implemented in a developing country context.
- Organisations and individuals wanting to participate in the reuse and repair economy.

The case study discusses:

This case study, which focusses on C&DW, demonstrates how organisations that purchase and resell used building materials for reuse purposes contribute to a circular economy.



3 Background / Problem

Global

The construction sector accounts for approximately 25% of global greenhouse gas emissions due to the energy and resource intensive demands of the industry. With a rising demand for industrial and residential properties, annual C&DW is expected to reach 2.2 billion tonnes globally by 2025. High-value items, such as metals and steel, are generally sold to businesses for reprocessing.

However, lower value items or items available in small volumes may not be feasible to recycle or, process and transport with existing technologies and across different geographies. As such, many of the raw materials used in the construction process follow a linear consumption model and are destined for landfill once the structure is in the demolition phase.

LINEAR MODEL:



National

According to the most recent 'South Africa State of Waste Report', published by the Department of Environmental Affairs (now referred to as the Department of Environment, Forestry and Fisheries) in 2018, C&DW is one of the largest waste streams generated in South Africa.

Many sectors rely on the economic and competitive benefits of a circular economy business model to spur the adoption of sustainable actions, however in the construction sector a major barrier to the promotion of circular activities is that many landfills offer a reduced tariff, or even remove it altogether, for the disposal of C&DW. This is because C&DW is frequently used at landfills as a cover material. Additionally, there is a lack of reliable data on the total amount of C&DW in South Africa, as well as the amount sent to landfill in comparison to reprocessing. This makes it difficult to understand the landscape of the sector and obtain investment for reprocessing facilities.

Local

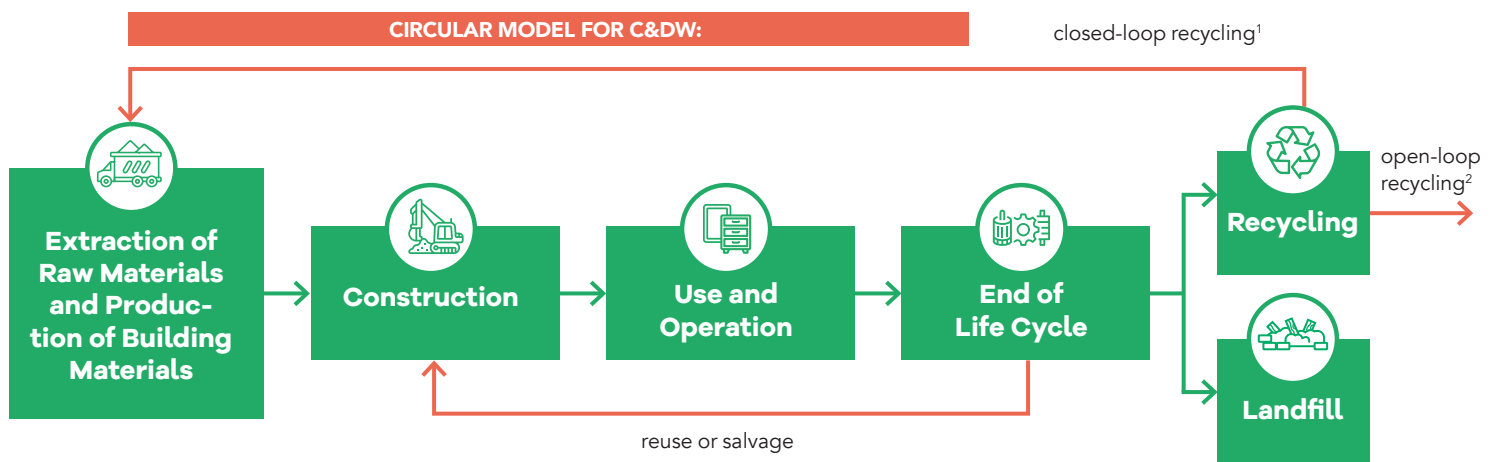
C&DW made up 22% (± 1.7 million tonnes) of the total waste generated in the Western Cape in 2015, with the City of Cape Town (CCT) contributing over 1 million tonnes towards the total C&DW generated. Material reported as C&DW at landfill is largely builders' rubble with varying levels of contamination.

At the same time, landfill airspace in the Western Cape is declining. Of the 25 municipalities, 22 have less than five years of airspace remaining. Pressures like these provide opportunities for municipalities to diversify their waste management models, as is particularly evident in Cape Town.



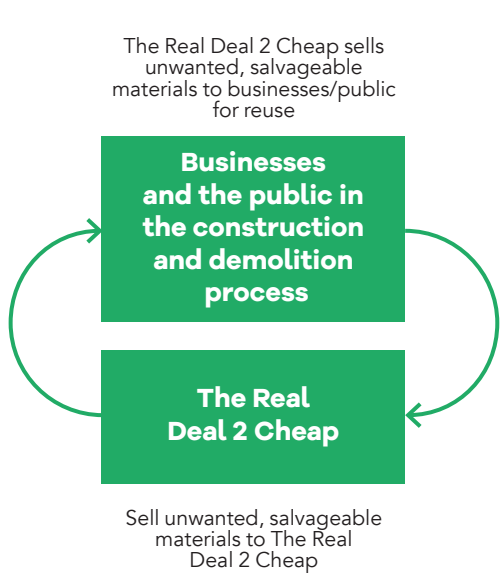
4 Solution

A circular business model, in most instances, extends the value chain of a product's life cycle, thus increasing the number of active participants (jobs) along the value chain.



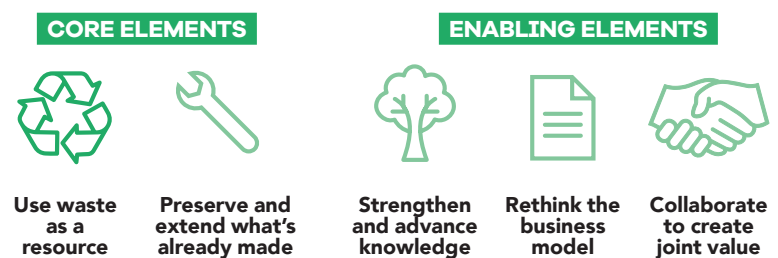
As with all value chains, it is important to note that waste is generated at each stage. Many components from the demolition process are in a functional condition and can be resold as is, while others may need repairs or, at minimum, can be salvaged for parts. The resale of C&DW provides an opportunity for business development and income generation. Several organisations have leveraged this opportunity: One such example in South Africa is presented below.

The Real Deal 2 Cheap is a small business that purchases and resells C&DW from businesses and the public. The items vary from bricks and roof tiles to sinks and door frames.



The initiatives undertaken by The Real Deal 2 Cheap is an example of how waste can become a resource and how a circular economy unlocks various circular economy strategies in line with the elements defined by Circle Economy (www.knowledge-hub.circle-lab.com/) as illustrated below:

Circular Economy Elements / Strategies



¹Closed-loop recycling, where plastic packaging is recycled into the same or a similar format to that which entered the recycling stream, maintaining plastics at their maximum value for circularity.

²Open loop recycling, where plastic packaging is recycled into a different format often in a different sector to that which entered the recycling stream. There is lost utility of this product at end-of life, as it can be recycled into fewer applications than if it had been included in a closed-loop recycling process.

5 Impact

Driving Resource Efficiency and Access: Reuse allows for the preservation of an item's physical properties and value while keeping the material in circulation. The resale of these items prolongs the life of products that are already made, which delinks resource consumption from economic activities. These items are open for public sale and allow for all-income groups to access construction products at more affordable prices.

Job Creation and Income Generation: The extension of the construction value chain to include small businesses, such as The Real Deal 2 Cheap, creates jobs for individuals in the community. By extracting smaller C&DW items that were previously sent to landfill, a second-hand building material store - The Real Deal 2 Cheap, has been able to appoint both full-time and part-time staff that work across sales, admin, and purchasing. Construction companies or individuals are incentivised to sell their demolition waste as they reap an economic benefit for the sale. While the additional revenue can go towards the purchase of other required second-hand or new materials.



6 Summary

The Real Deal 2 Cheap is an example of how waste can become a resource and how a circular economy can preserve and extend the life of what is already made. This demonstrates how the elements of a circular economy can be used to create both social and economic value.

Businesses like The Real Deal 2 Cheap play an important role in the construction and demolition landscape by offering a solution that is able to generate income from low volume and/or value waste. Despite the lack of an enabling environment, from low gate fees to highly contaminated deconstruction sites, this business is able to continue to build a sustainable business model that is able to support the community in which it operates through job creation and accessibility to affordable furniture, building materials and other products.

This case study was made possible through the generous support of:



For more information and support contact:

GreenCape: info@greencape.co.za | (021) 811 0250

