Investigating Innovative Waste Economies: redrawing the circular economy

Bringing Organics Back to the Land: co-creating the circular value chain

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Circular Economy and Organics

Sydney, Australia, faces a waste crisis, prompting a goal to divert 70% of its waste from landfill by 2030. Nearly 50% of the city's waste is organic matter, making it a key focus for achieving significant landfill diversion. Innovative waste economies hinge on understanding how various types of waste can translate into Circular Economy opportunities.

In 2016, Planet Ark studied the viability of collecting spent coffee grounds (SCG) from cafes and institutions for windrow composting on farms, narrowly focusing on consumer willingness to pay for responsible organic recycling at point of sale in cafes. Our collaborative design research broadened the scope, gathering a full array of actors in a deliberative conversation about the practicalities of 'reverse logistics' — returning food waste from the inner city to farmland.

Linking Urban and Rural Settings for Regenerative Outcomes

The exploration stemmed from an ongoing collaboration between the Hartley Vale Good Garlic Company (HVGGC) and the University of Technology Sydney (UTS).

HVGGC, a 12-hectare farm 150 km west of Sydney, partnered with UTS, utilising industrial-scale food dehydrators to process campus food waste. Michelle Zeibots, HVGGC's proprietor and a UTS academic, adopted a regenerative approach, employing windrow composting to address soil fertility issues. She collected food waste from UTS's recently acquired dehydrators and engaged nearby coffee shops to gather SCG for year-round windrow composting on her farm. Michelle and colleague Dena Fam view this initiative as pivotal in envisioning just and sustainable farm futures.

Spading coffee grounds onto a windrow compost heap at Hartley Vale. Photo: Michelle Zeibots

A Collaborative Design Workshop

We held a collaborative design workshop to address the challenges Michelle was facing by collecting and hauling organic waste material from city to farm, particularly after the COVID hiatus.

The objective of this workshop was to identify ways to support and develop the reverse supply chain, and to optimise the vast network of relationships Michelle had amassed in communicating the value of this initiative to potential partners.

Facilitated by strategic designer Dom Svejkar in December 2022 at the UTS School of Design, the in-person workshop brought together diverse participants spanning the reverse supply chain, including UTS operations staff and academics, coffee industry professionals, a social enterprise involved in hauling, logistics experts, local councils and farmers. Notably, this holistic approach, a first of its kind, effectively united varied perspectives and experiences, as acknowledged by one participant:

***"I've never been with coffee people, farming people and university people all together in the same room. It hasn't been done before"* - Workshop participant**

Utilising design methods to harness diverse stakeholder input, we encouraged participants to bring a material or object symbolising the circular supply chain. For instance, a coffee roaster brought a container of chaff, a by-product of coffee roasting destined for landfill without a designated end-use. Quickly, other participants said they would be happy to take this material, recognising its value as a dry, clean, uniform substance for regenerative farming.

In a second design activity, participants built out the circular supply chain by populating a four-metre-long map representing the chain in its fledgling form.

Participants engaged in collaborative conversations during this activity, taking advantage of the people in the room to ask and answer questions up and down stream of their place in chain, and innovating ways to resolve dilemmas.

Co-creating the circular value chain for organics. Photo: research team

Research Findings

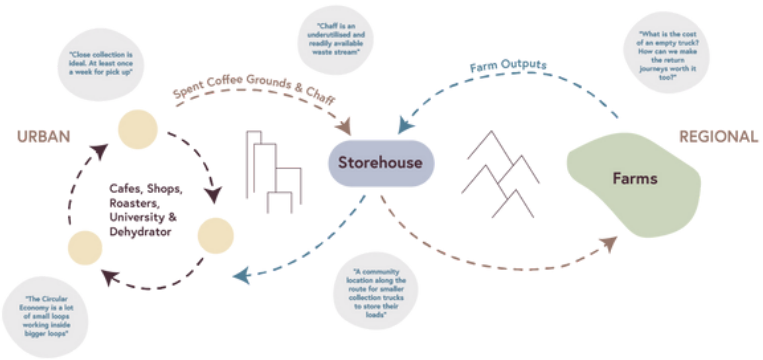
The workshop generated a range of valuable findings and outcomes. These include:

- The recognised value of composted food waste in enhancing soil quality on farms.
- SCG and chaff were identified as relatively contaminant-free waste streams – an important factor in piloting a reverse logistics supply chain.
- A need for data and evaluation at every stage to enable accurate measurements of, for example, landfill diversion, and to effectively communicate impact through storytelling.
- The social value of the workshop itself, to re-energise people often working in isolation, to rekindle existing networks and forge new ones. Alongside this, the enhanced creative capacity of thinking together to resolve dilemmas and imagine regenerative futures.

***"Some of the new connections made today were invaluable. Renewing old connections will enable what we have achieved so far to be reimagined and renewed in a really positive way" -* Michelle Zeibots**

The workshop findings suggest that the initial Planet Ark study on recycling SCG may have been too narrowly focused on consumer willingness to pay, missing broader commercial viability aspects. Instead, the workshop revealed a perspective aligning multiple values, including landfill diversion, cost savings, commercial waste hauling contracts, and farms viewing the waste as a valuable 'gift' for composting.

This has paved the way for ongoing cooperative research to align the interests of coffee roasters, waste generators, social enterprises, and regional farms. An alliance, formed out of the workshop participants and other organisations who have since joined, is planning to pilot the circular supply chain and seek further research funding to evaluate it. Watch this space!



A proposal from participants to use idle council land and empty back-journeys in the circular value chain. Illustration: Dom Svejkar

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This case study is a part of a federally-funded ARC Discovery research project led by Western Sydney University in collaboration with University of Technology Sydney (UTS) and Monash University titled Investigating Innovative Waste Economies: redrawing the circular economy.

This research project explores cases of economic and social innovation in 3 key waste streams: organics, single use plastics and bedding. A key focus of the study is understanding exactly how more circular practices are created. https://www.westernsydney.edu.au/ics/projects/investigating_innovative_waste_economies_redrawing_the_circular_economy

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