

Towards Building Circularity in Queensland: Policy Gaps in the Built Environment

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Keywords: Australia, Circular Economy; Policy Analysis; Disassembly; Deconstruction; Adaptive Reuse.

Abstract

This study evaluates Queensland's policies supporting circular economy practices in the building and construction industry. Through systematic review, it reveals that while current initiatives have improved construction waste recovery rates, policies focus primarily on recycling rather than higher-order circular practices like deconstruction and material reuse. The research identifies opportunities for policy reform and incentives to advance Queensland's transition to a circular economy in the built environment.

Introduction

The building and construction industry is a major consumer of resources and contributor to waste creation and consequently a major market for reclaimed building components and recycled materials (Amarasinghe et al., 2024; Mollaei et al., 2023). The circular economy, unlike the linear "take, make, and dispose" approach, is a production, consumption and cycling model focused on extending material lifecycles, recovering and regenerating resources, and maintaining their highest value use for as long as possible (Queensland Government, 2024d). Queensland's building and construction industry is at a critical moment in its transition to a circular economy, with mounting environmental challenges, approaching Brisbane 2032 Games, Paris Agreement, and the housing crises, necessitating urgent action (Evans, June 16; Foth et al., 2022; Marsh & Stilwell, 2023). This study evaluates Queensland's existing policies, highlighting critical gaps and opportunities within the state's policy landscape.

Scope

This research critically examines Queensland's existing policies related to the circular economy in the built environment, with a specific focus on deconstruction, adaptive reuse, waste management, and circular business models. By identifying policy gaps and limitations, the study paves the way for insights to address Queensland's unique challenges. The aim is to enhance sustainable practices, promote resource recovery, and establish a resilient framework for transitioning the state's building and construction industry to a circular economy, especially considering the environmental and societal imperatives.

Methodology

The research uses a qualitative dual-track systematic review, combining academic sources from Scopus with grey literature like government documents and industry reports. This approach merged theory with practice for a robust foundation in the study analysis.

Key Legislative Frameworks Supporting Circularity in Queensland

The *Waste Reduction and Recycling Act 2011* serves as Queensland's primary legislation to support circularity. It promotes waste mitigation, recycling, and resource recovery, emphasizing shared responsibility among governments, businesses, and communities. The Act includes product stewardship for managing the lifecycle of priority products and provides guidelines for industries like construction and demolition to reduce reliance on landfills (Queensland Government, 2011).

The *Queensland Waste Management and Resource Recovery Strategy* outlines ambitious goals, including a 25% reduction in household

waste, 90% diversion from landfills, and a 75% recycling rate by 2050. Focused on economic opportunities and environmental benefits, the strategy leverages tools like the waste levy,

infrastructure development, and product stewardship, with attention to the construction sector for enhancing material reuse and recovery (Queensland Government, 2011).

The *Queensland Resource Recovery Industries 10-Year Roadmap and Action Plan* aims to accelerate the state's transition to a circular economy. Key initiatives include a \$100 million Resource Recovery Industry Development Program, recycling enterprise precincts, and landfill bans. Special attention is given to the construction and demolition sector through projects that promote material reuse, recycling, and incorporation of recycled content in new developments (Queensland Government, 2019a).

The *Resource Recovery Industry Development Program (RRIDP)* supports resource recovery industries with infrastructure grants, project funding, and feasibility studies. Targeting 1.1 million tonnes of waste diversion annually, the program has facilitated over \$200 million in capital investment and created hundreds of jobs. It includes investments in construction and demolition (C&D) waste facilities, such as advanced processing technologies, sorting systems, and recycling lines (Queensland Government, 2024b).

The *Queensland Waste Disposal Levy*, introduced in 2019, discourages landfill use by increasing disposal costs in designated levy zones. Funds from the levy support resource recovery projects and align with Queensland's waste management targets. It particularly benefits the construction sector by funding projects for C&D waste processing infrastructure and promoting recycling and sustainable alternatives to landfill disposal (Queensland Government, 2024c).

The *Queensland Waste Management and Resource Recovery Strategy Review Report (2019–2023)* highlights significant achievements, including an 81.2% recovery rate for C&D waste in 2022–23, exceeding the 2025 target. This progress underscores the success of implemented strategies in advancing resource recovery and circular

economy goals (Queensland Government, 2024a).

The *ReMade in Queensland (ReMiQ)* initiative is a \$10 million fund designed to support manufacturers and recyclers in incorporating recovered materials into products. Offering matched funding of \$50,000 to \$2.5 million, the program fosters innovation, reduces waste, and expands market opportunities for recycled

materials, contributing to Queensland's circular economy objectives (Amarasinghe et al., 2024).

Australia's Circular Economy Framework aims to double Australia's circularity by 2035, focusing on resource lifecycle management through three key targets. Priorities span four major supply chains and six objectives for economic, environmental, and social benefits. Backed by major investments and policies, this framework sets a 10-year vision for innovation, collaboration, and stewardship (DCCEE, 2024).

Policy Landscape in Queensland

Recently implemented waste management initiatives and policies by the Queensland government have attempted to address aspects of circular economy but so far lack the scope and coordination to have the desired effect and required impact of comprehensive circular economy practices (Queensland Government, 2011, 2019b, 2019a, 2021, 2024b, 2024c, 2024a).

Current initiatives, such as the *RRIDP* and the waste levy (Queensland Government, 2024b, 2024c), address waste reduction and have helped exceed construction and demolition (C&D) waste recovery targets through recycling, but they fall short of supporting higher-order circular practices like deconstruction and material adaptive reuse in the construction sector.

Findings

Circularity Policy Gaps in Queensland's C&D Sector

This research evaluates Queensland's policies in supporting a circular built environment and facilitating the construction sector's transition to a circular economy. While significant progress has been made in waste management and recovery, current policies primarily focus on

recycling and lack direct measures to promote higher-order circularity practices such as deconstruction and reuse. Queensland's initiatives aim to reduce landfill use but emphasize lower-order circular strategies like recycling. Despite the state achieving an 81.2% recovery rate for construction and demolition waste in 2022–23, this milestone has been reached through recycling rather than practices that enable systemic change, such as reuse. These gaps highlight the need for Queensland to adopt more explicit and ambitious policies that promote deconstruction, reuse, and other sustainable practices. A shift toward supporting higher-value circular strategies is essential to achieve a genuine transition to a circular economy in the construction sector and overcome existing barriers to progress.

Barriers to High-Order Circular Strategies

Progress in high-value circular strategies, such as deconstruction and material reuse, has been hindered by several barriers in Queensland. Institutional and regulatory challenges, including fragmented policy frameworks and weak enforcement mechanisms, limit the effectiveness of circular initiatives. Economic disincentives, such as high upfront costs and financial risks, discourage businesses from adopting circular models. Additionally, cultural resistance and industry inertia, driven by longstanding reliance on linear economy practices, further slow the transition to more sustainable construction methods.

Opportunities For Queensland

Queensland has significant opportunities to enhance circularity in the built environment through deconstruction, adaptive reuse, and material recovery. The circular economy market in Australia is projected to create up to 25760 new jobs every year (Commonwealth of Australia, 2021).

Expanding deconstruction and adaptive reuse could drive green job creation in material salvaging, refurbishment, and repurposing. Research shows that diverting 10,000 tonnes of waste from landfills creates 9.2 jobs through recycling and 36 jobs through reuse and remanufacturing (Commonwealth of Australia, 2021; CSIRO, 2022). Targeted incentives for architects, developers, and recyclers would accelerate industry adoption of circular principles, reducing reliance on virgin materials. To unlock these opportunities, financial incentives such as tax benefits for sustainable

construction and grants for circular business models are essential. Workforce training programs can further develop expertise in material recovery, fostering economic resilience. By implementing these strategies, Queensland can position itself as a leader in circular economy innovation, driving both environmental and economic benefits within the construction sector.

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