



THE UNIVERSITY OF  
**SYDNEY**

—  
**Henry Halloran  
Urban & Regional  
Research Initiative**



## **Exploring the inhibitors and opportunities to embedding circular economy principles in housing**

A study of stakeholder perspectives in Sydney's new and renewed neighbourhoods

*Authored by Vibhavari Meghnad*

*For the*

*Henry Halloran Urban & Regional  
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Martin Payne Practitioner in Residence Program

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# Henry Halloran Urban and Regional Research Initiative

## Martin Payne PIR Reports

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### Title

Exploring the inhibitors and opportunities to embedding circular economy principles in housing: **A study of stakeholder perspectives in Sydney's new and renewed neighbourhoods**

### Key Points

- Circular economy (CE) principles in housing and neighbourhood development remain poorly defined and inadequately embedded in NSW planning frameworks.
- Stakeholder interviews identified significant barriers including outdated sustainability frameworks, unclear governance and the perceived cost of implementation.
- Opportunities exist across spatial scales to support CE integration via regulatory, financial and fiscal tools.
- Local, state and regional actors all have key roles in driving CE outcomes in housing, spanning across the government, industry, consumer and education sectors.
- A planning-only approach is insufficient; a coordinated, cross-sectoral strategy is required.
- More NSW-specific policy action and empirical research are needed at the building and neighbourhood scale, as most current research is focussed on the material scale.

### Context

Over the past two decades, the concept of the CE has emerged as a strategy to address the policy challenge of balancing anticipated population growth, climate change mitigation and social equity. The CE offers an alternative approach to sustainable urban development by decoupling growth from material and energy consumption, with potential to improve environmental, social and economic outcomes (Pomponi and Moncaster, 2017).

Current CE research and implementation efforts are largely focussed on product or material-scale (micro) or city-scale (macro) initiatives, with limited understanding of how CE can be practically embedded in the design and delivery of new and renewed residential areas (meso). This research aims to fill this gap by exploring how CE principles can be effectively integrated into housing and neighbourhood development in NSW. Using a combination of literature and policy review alongside semi-structured stakeholder interviews, the study sought to identify the barriers, enablers and policy opportunities for embedding CE into the NSW planning system.

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Vibhavari is an urban planner and policy professional with a focus on strategic planning, housing and liveability.

Over the last five years, Vibhavari has held roles in both the public and private sectors. Vibhavari is currently a Senior Project Officer at the NSW Department of Planning, Housing and Infrastructure, working on diverse planning projects that require cross-disciplinary and cross-industry collaboration.

### FURTHER INFORMATION

This paper is based on the Henry Halloran Urban and Regional Research Initiative Practitioner in Residence Program.

The full paper from this project can be found on the Henry Halloran Urban and Regional Research Initiative website:

<https://www.sydney.edu.au/halloran-urban-initiative/about/publications.html>

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# Key Findings

## *Barriers to CE implementation*

Stakeholders identified several primary inhibitors to CE implementation in residential development:

- **Unclear definitions and policy ambiguity:** The CE term remains abstract in planning instruments and poorly understood across sectors. Key terms like 'circular infrastructure' are not defined in statutory instruments, limiting implementation.
- **Ambiguities in roles and governance:** The division of responsibilities across government causes inefficiencies. Local government often bear the burden of delivery but lack the resources or regulatory mandate to lead circular initiatives.
- **Competing priorities:** A central tension is the perceived trade-off between rapid housing delivery and integrating CE (or more broadly, sustainability) principles. CE is viewed as adding cost or time rather than enabling better long-term outcomes.
- **Fragmented frameworks:** Tools such as BASIX and NABERS lack CE-specific metrics. Even where sustainability is embedded, the focus is often limited to energy and water use, ignoring material flows, potential reuse or lifecycle impacts.
- **Cost and certification barriers:** Industry stakeholders highlighted that CE-compatible design and planning approves often face higher upfront costs, longer approval timeframes, more risk or complex certification requirements, disincentivising adoption.
- **Environmental and social trade-offs:** Infrastructure like materials recovery facilities or reuse hubs face 'NIMBYism' and zoning challenges. Their environmental footprint is also under-scrutinised in early planning stages.

## *Policy opportunities by spatial scale*

- **Financial and fiscal incentives**
  - State: Grant programs and tax relief.
  - Regional: Align infrastructure and housing funding with CE priorities.
  - Local: Developer contributions offsets or density bonuses for circular infrastructure or reuse features.
- **Protecting industrial land**
  - State: Safeguard land in strategic plans and SEPPs.
  - Regional: Identify land/precincts for circular infrastructure in regional strategic plans.
  - Local: Zone land and apply development controls for CE-aligned uses.
- **Shared materials platforms and data**
  - State: Lead creation and regulation of a central materials database.
  - Regional: Use shared data to coordinate regional logistics.
  - Local: Embed platform participation in consent conditions.
- **Monitoring and performance frameworks**
  - State: Mandate CE reporting across planning legislation.
  - Regional: Develop regional benchmarks.

# Implications for Practice

Embedding CE principles in housing and neighbourhood development requires coordinated planning reform, robust policy support and fiscal incentives. Local governments must be empowered with regulatory tools and funding to experiment and implement CE at scale. At the same time, state level leadership is essential to align performance standards, definitions and incentives across jurisdictions. Many policy tools are relevant across both new and renewed neighbourhoods, supporting an integrated planning approach.

Effective implementation will require strong implementations across government, industry and education sectors. Further research is needed into business case models, land suitability and consumer behaviour to enable adoption. A cross-sectoral, life cycle approach, integrating design, construction, occupancy and reuse, is vital for achieving long term environmental and social outcomes.

- Local: Embed performance monitoring into planning provisions; audit/reporting throughout construction and post-occupancy.
- **Update existing regulatory frameworks**
  - State: Revise BASIX and NABERS to include CE related performance metrics.
  - Regional: Integrate CE priorities in regional and local strategic plans.
  - Local: Amend LEPs and DCPs to include design standards.

### *Stakeholder roles*

Interviewees consistently identified the following as central actors in enabling the CE:

- **Local government:** Leads implementation at the neighbourhood scale; development assessment, rezoning and facilitating localised partnerships.
- **State government:** Lead on policy alignment, standardisation of definitions, fiscal incentives and updating existing frameworks.
- **Industry and peak bodies:** Key to innovation, training and material adoption, but requires incentives and certainty.
- **Consumers and residents:** Less involved currently but critical to uptake and behaviour change.
- **Educational institutions:** Play a role in knowledge transfer, capacity building and long-term professional development.

## **Sources**

- Pomponi, F. and Moncaster, A. (2017). Circular economy for the built environment: A research framework. *Journal of Cleaner Production*, 143, pp. 710-718