



Enabling Design for Environmental Good BUILDINGS SECTOR

The Australian construction sector is the third largest industry (Ai Group 2015) and produces around 11% of GDP in value-added terms (Garret 2020). **The industry's influence on the Australian economy is amplified by its extensive and predominantly domestic supply chain, both upstream and downstream.** Construction and Demolition (C&D) waste generation is growing faster than municipal and commercial waste streams, in both absolute and per capita terms (Blue Environment 2020). The scale and significance of construction provide both the rationale and opportunity for engagement in design for environmental good.

'Enabling Design for Environmental Good' is a project that uses insights and approaches from design, innovation, and sustainability to propose a suite of actions to improve the uptake of sustainable design for products and associated materials used in Australia.

This is an extract from the original project report, focusing specifically on the buildings sector which was selected as it holds significant potential for impact on the Australian economy.

For this report, the buildings sector is considered to encompass the physical products and materials in buildings (not including operating energy, and water).

To encourage more action, key points of potential intervention along the supply chain were identified. 'Cross-cutting levers' developed in this project support stakeholders to apply Eco-Design initiatives at meaningful points in the development of products such as building. The three most important levers for improved Eco-Design and circularity in the building sector are (in numerical/not priority order):



CROSS CUTTING LEVER 1

The buildings sector should be guided by the national Eco-Design for a Circular Australia Strategy and Action Plan, with a particular focus on long-term embodied energy and recycled content specifications, potential transition to mandatory national building disclosure requirements (at least for relevant building types and scales), and establishing national safety standards covering aspects for chemicals of concern and consider the role of enhanced enforcement, including penalties for non-compliance. All of which would help guide designers, architects, and specifiers as to what dimensions of Eco-Design could be applied for better circular economy outcomes for buildings.



CROSS CUTTING LEVER 4

Raising standards and specifications are crucial to transitioning the buildings sector to widespread Eco-Design, including improving Australian Standards for building products and specifications for end markets, addressing issues such as circularity, chemical content, and design for disassembly. This could include recycled content standards for select priority product areas, implementing digital Building Materials Passports, and establishing a consistent, industry-wide approach and relevant standards for the use of BIM in building projects.



CROSS CUTTING LEVER 5

The proposed Eco Design Innovation Fund could both help pilot and scale-up innovation in sustainable building products and systems, including a particular focus on new business models that extend across supply chains, and how design practitioners can be central to any such transitions.

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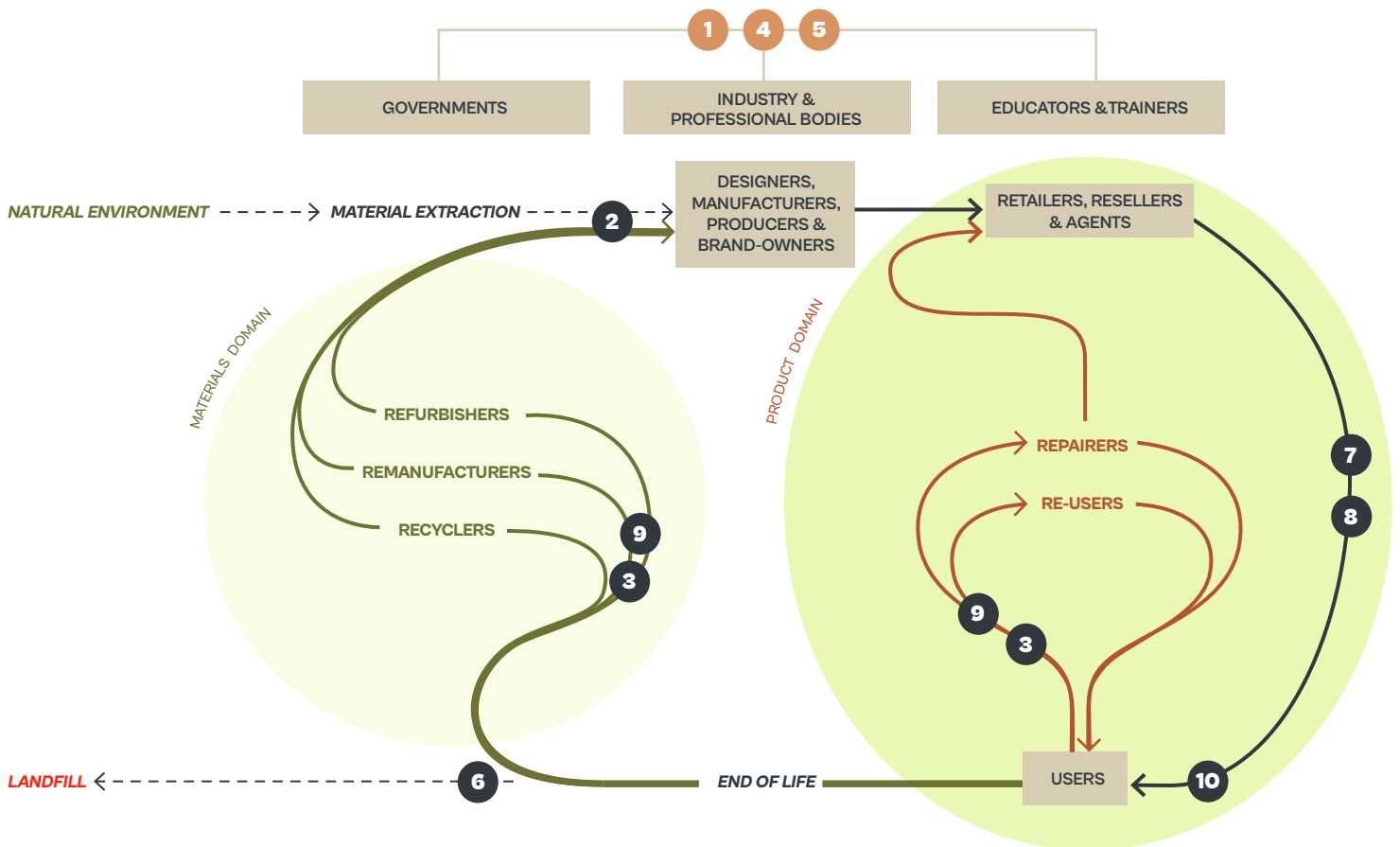
The diagram below is adapted from various material flow diagrams from organisations such as the Ellen MacArthur Foundation. It represents the linear flow of materials from extraction/production to manufacture, use and end of life at landfill in the building sector.

It shows specific points along the supply chain where recommended levers may be applied to improve Eco-Design and circularity through the activation of value retention options to limit linear and environmentally problematic material flows. The diagram also shows two distinct

circular loops: Orange shows actions and pathways that keep a product in circulation for as long as possible (reuse and repair) and Green shows actions and pathways that keep material in circulation for as long as possible (recycling).

Impacts of levers for Eco-Design within a product supply chain

Example: timber-framed window (buildings sector)



- 1** **Cross-cutting lever 1**
Strategy for Eco-Design for a Circular Australia
- 2** **Cross-cutting lever 2**
Revise and energise product stewardship and extended producer responsibility
- 3** **Cross-cutting lever 3**
Activate design for reuse, repair and refurbishment: the Reuse & Repair Reset program
- 4** **Cross-cutting lever 4**
Raise standards and specifications for products and materials for national alignment with global best practice producer responsibility
- 5** **Cross-cutting lever 5**
National funding for Eco-Design, circular initiatives and supply chain innovation: The Eco-Design Innovation Fund
- 6** **Cross-cutting lever 6**
Phase in Accelerating Recyclables from Landfill Fees on priority products
- 7** **Cross-cutting lever 7**
Financial and regulatory mechanisms addressing negative externalities
- 8** **Cross-cutting lever 8**
Procurement power and market pull: Buy for Good program
- 9** **Cross-cutting lever 9**
Professional education program to activate skills and capacity: Learning for Environmental Good and Up-skilling Program
- 10** **Cross-cutting lever 10**
Accelerate public acceptance and support of design for environmental good

Responsible entities
 Current dominant linear flow
 Preferred circular flow
 Products flow
 Secondary Materials flow