



## **Submission to the Productivity Commission Enquiry on Circular Economy**

Priority Opportunities: Structural Engineered Bamboo as a Circular Economy Industry in Australia

Submitted by: Mansfield Advisory and Bamboo Society of Australia

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Mansfield Advisory (MA) and the Bamboo Society of Australia (BSA) commend the Productivity Commission's circular economy inquiry. MA offers Jeremy Mansfield OAM's expertise, with 34+ years in construction and 18+ years in sustainable practices. BSA, led by President Jennifer Snyders—CEO of House of Bamboo with 20+ years in bamboo construction—champions bamboo's growth and bio-products for societal, environmental, and economic gains. Structural engineered bamboo (SEB)—stronger than timber, faster-growing, and (arguably) more sustainable—offers transformative potential. Yet Australia, alone among continents, lacks a bamboo cultivation strategy, a gap BSA and MA's June 2025 'The Next Frontier Summit' event series, "Pioneering Structural Engineered Bamboo in Australia," will address.

### **Opportunities for Improved Outcomes**

Bamboo matures in 5–7 years—faster-growing than timber's 26–50 years—and regenerates without replanting, enabling yearly harvests. This ensures a reliable supply of locally grown building material, easing Australia's timber shortages. SEB, from 70% of its poles, is stronger than timber with tensile strength approaching steel in some applications, while the rest yields sisal ropes and biochar for renewable diesel, sustainable aviation fuel (SAF), and graphene. Harvested above ground, it preserves soil carbon, making it (arguably) more sustainable and advancing circular loops—narrowing, closing, slowing, and regenerating.

- **Environmental Outcomes:** Bamboo sequesters carbon rapidly (INBAR, 2019), cuts construction emissions (39% of global total), and boosts biodiversity. SEB's durability and biochar's soil benefits enhance water, land, and air quality.
- **Economic Outcomes:** SEB's low-energy processing cuts costs, while its strength and bio-products tap high-value markets. Jobs in cultivation, manufacturing, and exports could thrive in northern and eastern regions.
- **Social Outcomes:** Bamboo cultivation offers employment and community benefits, particularly in regional areas, aligning with sustainable land-use principles.

### **Feasible Levels of Uptake in Australia**

Despite non-invasive clumping varieties, bamboo's potential—stronger than timber, faster-growing, and (arguably) more sustainable—is hampered by exclusion from forestry funding schemes. The Department of Agriculture, Fisheries and Forestry (DAFF) has yet to act. The June 2025 Next Frontier Summit will unite stakeholders to craft a 10-year roadmap, with SEB uptake targets—indicatively 3–5%<sup>1</sup> timber substitution by 2035—set for World Bamboo Day, September

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<sup>1</sup> Based on available data as at March 2025

18, 2025, pending stakeholder support. This equates to 120,000–250,000 cubic meters annually, achievable with 6,000–25,000 hectares of plantations.

### **Monitoring, Measuring, and Prioritizing Opportunities**

SEB's impacts could be tracked through:

- Environmental: Carbon sequestration (tonnes/ha), soil carbon retention (%), emissions avoided (tCO<sub>2</sub>e).
- Economic: Job creation (FTEs), cost savings (\$/unit), bio-product revenue (\$/year).
- Social: Regional participation (%) and training uptake.

A circular economy dashboard using satellite and industry data could monitor progress. SEB's regenerative harvests, strength, and sustainability prioritize it, but DAFF action is critical to unlock funding and scale.

### **Valuing Aboriginal and Torres Strait Islander Knowledges**

Bamboo cultivation aligns with Aboriginal and Torres Strait Islander values of sustainable land stewardship. Co-designed plantations or Indigenous-led enterprises could foster economic opportunities, with cultural and intellectual property safeguarded under Native Title frameworks, ensuring equitable benefits without assuming prior bamboo-specific knowledge.

### **Conclusion**

SEB—stronger than timber, faster-growing, and (arguably) more sustainable—offers a low-embodied-carbon solution with regenerative yearly harvests to address timber shortages and advance Australia's circular economy. Jeremy Mansfield OAM and Jennifer Synders bring decades of expertise. Australia's lag in embracing bamboo risks ceding global leadership. The June 2025 Next Frontier Summit will shape a roadmap, with an indicative 3–5% SEB uptake by 2035 set for World Bamboo Day 2025, subject to stakeholder backing. We urge the Commission to compel DAFF to prioritize SEB with a cultivation strategy, funding pathways, and pilots, ensuring Australia seizes this proven opportunity.



Jennifer Synders

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