2025 consultation

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Response to NSW Net Zero Commission Consultation

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Submitted by: Mansfield Advisory / Bamboo Society of Australia
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Introduction

Mansfield Advisory and the Bamboo Society of Australia welcomes the opportunity to provide input to the NSW Net Zero Commission's consultation paper, published in April 2025, as NSW transitions toward a net zero, climate-resilient future by 2050. This submission draws on insights from two recent articles—"Bamboo: Unlocking Climate Solutions with Australia's Sustainable Finance Taxonomy" (published July 2025) and a LinkedIn update on the Summit and 10-year draft Roadmap—alongside the outcomes of the ICC-ES-sponsored Next Frontier Summit held across three NSW cities in 2025. We advocate for the integration of Structural Engineered Bamboo (SEB) into NSW's climate strategy, highlighting its potential to accelerate emissions reductions, enhance carbon storage, and support First Nations-led adaptation, aligning with the Commission's goals.

Bamboo's Role in Emissions Reduction and Carbon Storage

Bamboo, particularly non-invasive clumping varieties, offers a transformative opportunity for NSW's climate targets. Research suggests that by 2035, 100,000–500,000 hectares of bamboo plantations could sequester 3–25 million tons of carbon dioxide annually and avoid 2.4–24 million tons of construction emissions, driven by SEB's rapid growth (0.01–0.03 meters per day) and low embodied carbon (0.1–0.3 kg CO2e/kg). This positions bamboo as a key player in the "Agriculture and Land" sector, where carbon storage in aboveground biomass, belowground biomass, litter, and soil organic carbon (up to 79 kg C/ha/yr) could complement existing ACCU schemes like the Soil Carbon method, managed by the Clean Energy Regulator. The proposed Bamboo Forestry Carbon Qualification (BFCQ), currently at the Expression of Interest stage with the Department of Climate Change, Energy, the Environment and Water, aims to value these components, pending future development.

The land sector's net emissions variability, as noted in the Commission's paper, underscores the need for innovative approaches. Bamboo's 5–7 year harvest cycle and resilience to climate extremes (e.g., drought and heat) could stabilize carbon stocks, addressing uncertainties in vegetation and soil storage. The 10-year draft Roadmap, developed post-Summit, proposes scaling SEB production to 0.8–6 million tons annually by 2035, attracting 500 million to 1.5 billion Australian dollars in investment, which could align with the forthcoming Emissions Reduction Roadmap for NSW Land and Primary Industries.

Summit Insights and the 10-Year Draft Roadmap

The Next Frontier Summit, featuring global experts such as Neil Thomas MBE (Atelier One), Dr. Trinh Huynh (University of the Sunshine Coast), and Jennifer Snyders (Bamboo Society of Australia), showcased bamboo's potential across NSW. Held in 2025, the Summit introduced the 10-year draft Roadmap, currently seeking feedback for finalization by World Bamboo Day (September 18, 2025). Key findings include:

- **Policy Gaps**: Bamboo's agricultural classification excludes it from forestry incentives, and its absence from the Australian Sustainable Finance Taxonomy (June 2025) raises investor costs. The Roadmap advocates for tailored Technical Screening Criteria.

- **Technical Barriers**: Limited plantations, manual harvesting, and National Construction Code gaps hinder SEB adoption, though ICC-ES verification of ISO 22156/22157 standards supports compliance.
- **Opportunities**: Pilot projects (Phase 3) and regenerative partnerships with timber (Phase 4) could address housing needs, while carbon credits (via BFCQ) and biodiversity benefits enhance appeal.

The Roadmap's 100,000–500,000 hectare target aligns with NSW's land sector potential, offering a framework to complement the Timber Fibre Strategy (July 2025) and support the Future Made in Australia initiative's Net Zero Transformation Stream.

First Nations Engagement and Adaptation

Bamboo's integration resonates with the Commission's focus on First Nations climate action. The Summit emphasized Indigenous partnerships, leveraging Free, Prior, and Informed Consent protocols for agroforestry on significant land holdings (e.g., Indigenous Protected Areas). Cultural knowledge of caring for Country, as highlighted in the consultation paper, can guide bamboo's drought resilience and erosion control, enhancing adaptation to extreme heat and humidity—projected to increase by 14.8 hot days annually by 2050. The UNEP FIT report (July 2025) notes SEB's 3–25 million tons of annual sequestration, supporting First Nations economic self-determination through renewable energy and carbon projects.

Sector-Specific Contributions

- **Agriculture:** Responsible for 18.5% of national emissions, this sector can leverage bamboo for carbon farming. Bamboo plantations rapidly sequester CO2 in biomass and soil, while its use as a sustainable livestock feed supplement and as biochar can reduce methane and fertilizer-related emissions, addressing the sector's stagnant emissions since 2005 as noted in the Commission's paper.
- **Resources and Mining:** This sector can utilize bamboo for the rapid rehabilitation of post-mining sites, using its fast growth to prevent soil erosion and its phytoremediation properties to clean contaminants. This transforms degraded land into a productive carbon sink, especially when the harvested bamboo is used in long-lasting products like SEB, aligning with the Commission's focus on reducing resource sector emissions (97% from coal mining).
- **Electricity and Energy:** SEB's low-carbon construction materials could reduce embodied emissions in renewable infrastructure, addressing the 9 GW gap to the 2030 Roadmap target.
- **Transport:** Bamboo's lightweight, strong properties could innovate freight vehicle design, supporting decarbonisation.
- **Built Environment:** Electrification of buildings, a 6% emissions source, could use SEB for sustainable, low-carbon structures, aligning with the Sustainable Buildings SEPP review.
- **Industry and Waste:** SEB substitutes for cement and steel (7% of global emissions each), while bamboo waste could enhance landfill gas capture (currently 39% in NSW).

Alignment with Circular Economy Principles

SEB aligns with the NSW Government's and national commitments to expand circular economy opportunities, as noted in the Commission's consultation paper (Page 15), to decarbonize heavy industry. As outlined in our submission to the Productivity Commission (April 2025), SEB's 5–7 year growth cycle, regenerative harvests, and multi-product potential (e.g., sisal ropes, biochar for renewable diesel and sustainable aviation fuel, and graphene) create narrow, closed, slowed, and regenerated loops. This reduces construction emissions (39% globally) and leverages bamboo's durability and soil carbon preservation, complementing NSW's focus on circular strategies. The Next Frontier Summit's 10-year Roadmap targets 3–5% timber substitution by 2035 (120,000–250,000 cubic meters from 6,000–25,000 hectares), enhancing resource efficiency and job creation in northern and eastern NSW. We recommend integrating SEB into the Net Zero Industry and Innovation Program (NZIIP) review and circular economy pilots, aligning with state efforts to reduce waste and optimize material use.

Recommendations

Mansfield Advisory and the Bamboo Society urges the Commission to:

- **Incorporate Bamboo**: Include SEB in the Emissions Reduction Roadmap and Sustainable Finance Taxonomy, leveraging the 10-year Roadmap's 69-day feedback window.
- **Engage Stakeholders**: Partner with First Nations and industry (e.g., House of Bamboo) to pilot SEB projects, drawing on Summit insights.
- **Monitor Progress**: Add SEB-specific metrics to the monitoring framework, tracking carbon sequestration, adoption rates, and circular economy impacts.
- **Adaptation Focus**: Explore bamboo's role in heat resilience and biodiversity, informed by Indigenous practices.

Conclusion

Bamboo, backed by Summit evidence and the 10-year Roadmap, offers NSW a scalable, climate-smart solution. With 68 days to World Bamboo Day, we seek urgent action to position Structural Engineered Bamboo as a cornerstone of net zero and resilience, enhancing community and First Nations outcomes. We welcome collaboration to refine this vision.

BAMBOO SOCIETY OF AUSTRALIA

Mansfield ADVISORY

Jennifer Synders

President

Bamboo Society of Australia

Jeremy Mansfield OAM

Founder / Director

Mansfield Advisory Pty Ltd

Attachments:

- "Bamboo: Unlocking Climate Solutions with Australia's Sustainable Finance Taxonomy" (LinkedIn and full article)
- Summit and 10-year draft Roadmap update (LinkedIn post)
- 10 year draft roadmap for structural engineered bamboo - summary and detailed versions.

Source: Bamboo Society of Australia

Bamboo: Unlocking Climate Solutions with Australia's Sustainable Finance Taxonomy

Mansfield Advisory Pty Ltd
214 followers

July 10, 2025

Call to Action (Executive Summary)

Bamboo offers a transformative opportunity for Australia's climate, biodiversity, and economy. By 2035, 100,000–500,000 hectares of clumping bamboo could potentially drive AUD$500 million to $1.5 billion in initial investment, sequester 3–25 million tons of carbon dioxide annually, and avoid 2.4–24 million tons of construction emissions. Backed by global insights and local potential, this natural resource is poised for action. State and Federal Treasuries, the Australian Sustainable Finance Institute, Clean Energy Finance Corporation, banks, and investors are urged to understand these possibilities and integrate bamboo into Australia's net-zero strategy.

Introduction

Our advocacy for bamboo as a climate and economic solution—highlighted in (**Bamboo: The Overlooked Game-Changer in Australia's Sustainable Future!**) gained significant traction at the ICC-ES-sponsored Next Frontier Summit. Held across three cities, the summit brought together global experts, including Neil Thomas MBE (Atelier One), Dr. Trinh Huynh

(University of the Sunshine Coast), David Sands (Rizome), Prof Xiao (ZJU-UIUC Institute, Zhejiang University), Jailene Santana (WWF Australia), Durnford Dart (Bamboo Australia), and BAMBuild (Brazil), to showcase bamboo's potential.

The summit introduced a 10-Year Roadmap for Structural Engineered Bamboo (SEB), aiming to scale this fast-growing grass as an agricultural crop (ANZSIC 0159). Yet, policy gaps in the Australian Sustainable Finance Taxonomy (ASFT), released in June 2025, pose challenges. The Mansfield Advisory's Bamboo Forestry Carbon Qualification (BFCQ) draft ACCU method is only at the Expression of Interest stage, and there are no clear signals to support bamboo plantation investments. This underscores the urgent need for ASFI, CEFC, banks, investors, State and Federal Treasuries to recognise and act on bamboo's opportunities.

Image 1: House of Bamboo Showroom – courtesy, House of Bamboo

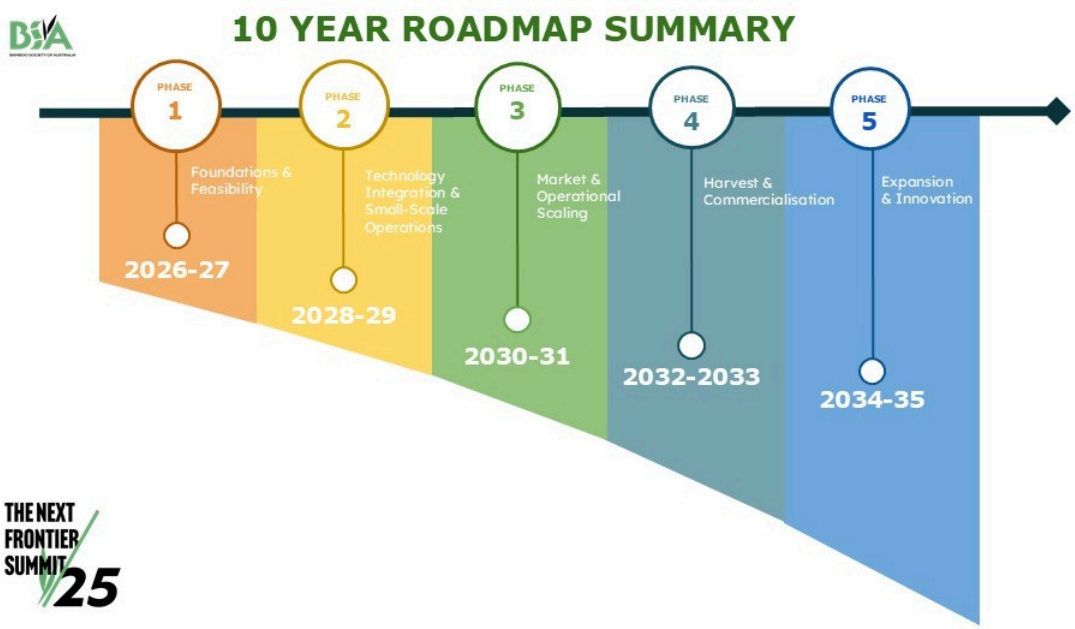


Image 2: Draft summary of the 10-year roadmap for Structural Engineered Bamboo (Bamboo Society of Australia)

Bamboo's Alignment with the Australian Sustainable Finance Taxonomy

By 2035, 100,000–500,000 hectares of non-invasive clumping bamboo could produce 0.8–6 million tons of Structural Engineered Bamboo annually, harnessing its rapid growth of 0.01–0.03 meters per day (3.65–10.95 meters/year)—four to ten times more productive than traditional trees. This aligns with the 'Agriculture and Land' sector, where research quantifies carbon storage in aboveground biomass, belowground biomass (root-shoot ratio 0.85), litter, and soil organic carbon (up to 79 kg C/ha/yr). However, its eligibility for carbon credit Soil Carbon methods awaits approval from the Clean Energy Regulator, pending further consultation. Its ecosystem services—biodiversity support, erosion control, and water retention—meet the 'Do No Significant Harm' criteria. In the 'Construction and Buildings' sector, Structural Engineered Bamboo's low embodied carbon (0.1–0.3 kg CO2e/kg) and steel-rivalling tensile strength position it as a substitute for cement and steel, each contributing 7% to global emissions. With the International Code Council Evaluation Service verifying Structural Engineered Bamboo compliance with International Organization for Standardization 22156/22157 standards and confirming adherence to National Construction Code performance criteria, alongside Environmental Product Declarations validating environmental impact values for NABERS Embodied Carbon and Green Star Building ratings, these credentials are poised to build confidence in Structural Engineered Bamboo.

International precedents underscore bamboo's alignment with sustainable finance frameworks.

The EU Taxonomy includes bamboo under agroforestry for carbon sequestration and soil health, supporting climate mitigation EU Taxonomy, 2020. China's Green Bond Catalogue explicitly lists bamboo plantations for ecological restoration and carbon credits, driving

investment in a USD 199.2B green bond market by 2021 (**Green Finance Platform, 2022**). These examples strengthen the case for ASFT to recognise bamboo's agricultural and construction potential, urging immediate policy integration to unlock investment.

> *"Bio-based materials may represent our best hope for radical decarbonisation through the responsible management of carbon cycles. The shift towards properly managed bio-based materials could lead to compounded emission savings in the sector of up to 40% by 2060 in many regions." United Nations Environment Programme Building Materials and the Climate: Constructing a New Future*

Policy and Technical Gaps

The Summit identified key barriers to bamboo's integration: its agricultural classification excludes it from forestry frameworks, missing timber incentives despite Structural Engineered Bamboo's equivalence to laminated veneer lumber; limited agricultural recognition restricts subsidies; carbon credit methodologies overlook bamboo's 5–7 year cycles, though the Bamboo Forestry Carbon Qualification, currently at the Expression of Interest stage with the Department of Climate Change, Energy, the Environment and Water, aims to value aboveground biomass, belowground biomass, and products as a proposed method. Meanwhile, the applicability of the existing Soil Carbon method, managed by the Clean Energy Regulator, to bamboo is under review; its absence from technical screening criteria raises investor costs; static life cycle assessments undervalue sequestration, necessitating dynamic assessments; commercialisation faces challenges with limited plantations, the need for smart and productive harvesting techniques and standardisation gaps; First Nations engagement lacks tailored Free, Prior, and Informed Consent protocols despite agroforestry potential; bamboo's grass status hinders National Construction Code adoption; and Australia's non-signatory status with the International Network for Bamboo and Rattan limits access to global expertise and investor markets.

Utilising Bamboo as a Structural Engineered System

A Sydney panel, including Neil Savery, outlined strategies for Structural Engineered Bamboo adoption. The National Construction Code's performance-based approach supports experimentation, with local pilot and demonstration projects (roadmap Phase 3) paving the way. Jennifer Snyders (President, Bamboo Society of Australia and CEO for House of Bamboo) emphasised bamboo's 5–7 year harvest cycle as a regenerative partner to timber (Phase 4), offering a sustainable alternative.

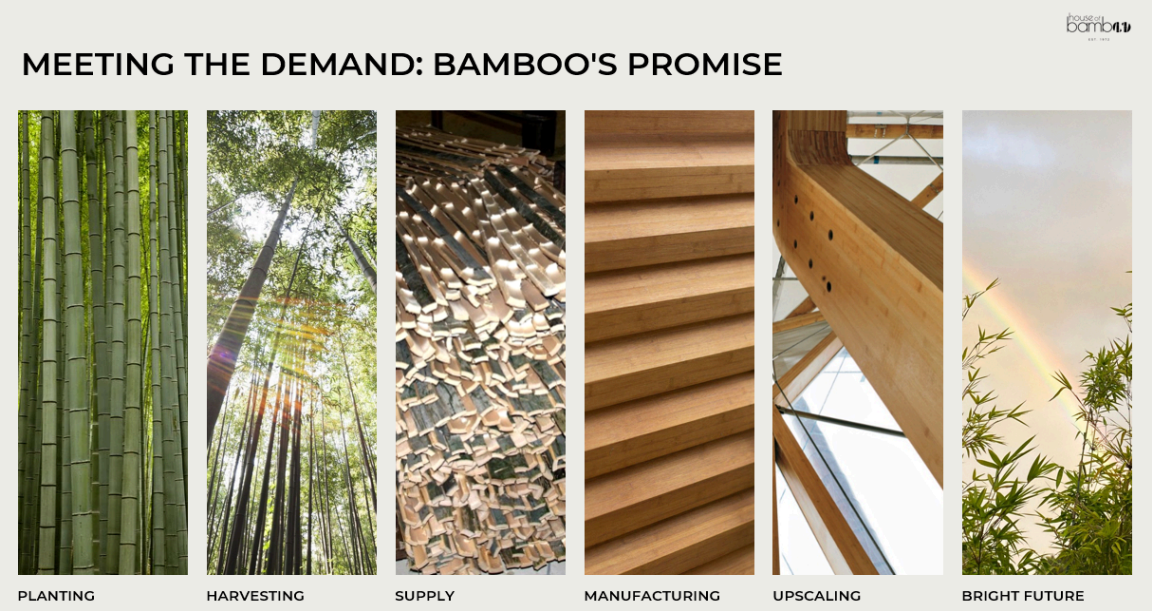


Image 3: The stages of structural engineered bamboo (SEB) production – courtesy, House of Bamboo.

Investment Opportunities

The 10-Year Roadmap, currently in development, offers a framework where 100,000–500,000 hectares of bamboo plantations could potentially attract AUD 500 million–1.5 billion in initial investment by 2035, with annual operating costs estimated at $35,000–40,000/ha. Research suggests that such a scale could lead to 3–25 million tons CO_2 stored annually, with bamboo avoiding 2.4–24 million tons of embodied carbon yearly, based on sequestration and substitution rates. These figures are proposed as part of the roadmap's consideration to maximise bamboo's climate and economic impact. Benefits include:

- **Carbon Markets:** The applicability of the existing Soil Carbon method to bamboo, managed by the Clean Energy Regulator, and the proposed Bamboo Forestry Carbon Qualification, currently at the Expression of Interest stage with the Department of Climate Change, Energy, the Environment and Water, could unlock the potential 3–25 million tons of carbon dioxide per year sequestered value, pending future consultation, approval and development.
- **Construction Sector:** Structural Engineered Bamboo's strength and modern construction methods might address housing needs, potentially avoiding 2.4–24 million tons of carbon dioxide per year through low-carbon solutions.
- **Agricultural Innovation:** Bamboo's rapid growth (0.01–0.03m/day) could support 0.8–6 million tons per year, appealing to Clean Energy Finance Corporation investors
- **Biodiversity and Social Impact:** Indigenous partnerships and ecosystem services could enhance environmental, social, and governance appeal across 100,000–500,000 hectares. (Based on a range of Financing, Carbon, and Yield Assumptions for Structural Engineered Bamboo by 2035)

Alignment with Future Made in Australia

Bamboo's potential aligns with the Australian Government's Future Made in Australia initiative, launched in the 2024–25 Budget with a $22.7 billion, decade-long investment to strengthen domestic manufacturing and net-zero industries. This framework, guided by the National Interest Framework, targets sectors like renewable hydrogen and critical minerals but offers a platform for bamboo's 100,000–500,000 hectares and proposed AUD 500 million–1.5 billion investment. Its focus on the Net Zero Transformation Stream and Economic Resilience supports bamboo's potential role in sequestering 3–25 million tons CO_2/year and avoiding 2.4–24 million tons in construction, leveraging public-private partnerships through the Clean Energy Finance Corporation and the Future Made in Australia Innovation Fund. However, the recent $300 million Timber Fibre Strategy (July 07, 2025) focuses solely on timber, highlighting a gap where 100,000–500,000 hectares of bamboo could complement this effort. Action by World Bamboo Day, September 18, 2025 (69 days from now), can cement bamboo's role, building on its insurance viability.

Strategic Alignment with the Forest Products Industry

Bamboo enhances Australia's forest products industry through six strategic pillars. First, it expands sovereign manufacturing by integrating Structural Engineered Bamboo with timber fibre across 100,000–500,000 hectares by 2035. Second, its rapid growth (0.01–0.03m/day) meets domestic demand, complementing managed forests. Third, managing bamboo plantations could boost forest health, potentially sequestering 3–25 million tons of carbon dioxide per year while supporting biodiversity. Fourth, industry enablers—International Code Council Evaluation Service standards, the proposed 500 million to 1.5 billion Australian dollars in investment, and infrastructure—could drive Structural Engineered Bamboo adoption. Fifth, bamboo cultivation supports regional communities, including First Nations with Free, Prior, and Informed Consent protocols. Sixth, innovating the value chain with dynamic life cycle assessments and carbon credits (e.g., Bamboo Forestry Carbon Qualification) could position Australia as a biobased leader. Yet, the Timber Fibre Strategy's timber-only focus underscores the need to advocate for bamboo's inclusion.

Roadmap to Action

The draft 10-year roadmap, developed for the Next Frontier Summit, seeks feedback to finalise it by September 18, 2025, for World Bamboo Day launch. Key actions are outlined below to advance Structural Engineered Bamboo integration, include:

Policy and Investment:

- Engage the Australian Sustainable Finance Institute to recognise bamboo-specific Technical Screening Criteria within the Australian Sustainable Finance Taxonomy.

- Support the Bamboo Forestry Carbon Qualification Expression of Interest and inclusion in Soil Carbon methods.
- Fund research and development to address data gaps, including carbon quantification and other related areas.
- Australia to commit to joining the International Network for Bamboo and Rattan by 2026 for global expertise.
- Integrate bamboo into the 2035 Nationally Determined Contribution and Clean Energy Finance Corporation funding, beyond the current timber focus.
- Develop Free, Prior, and Informed Consent protocols with Reconciliation Australia for First Nations engagement.
- Seek bamboo's inclusion in the 300 million Australian dollar Timber Fibre Strategy (July 07, 2025) or identify separate funding to complement timber efforts.

Performance, Standards, and Codes:

- Leverage the International Code Council Evaluation Service's International Organisation for Standardisation 22156/22157 assessments and local case studies to establish National Construction Code pathways.
- Collaborate with Standards Australia to define Structural Engineered Bamboo standards using modern construction methods and pilot projects.
- Fund research and development and Technical and Further Education training programs to ensure scalability and workforce readiness.

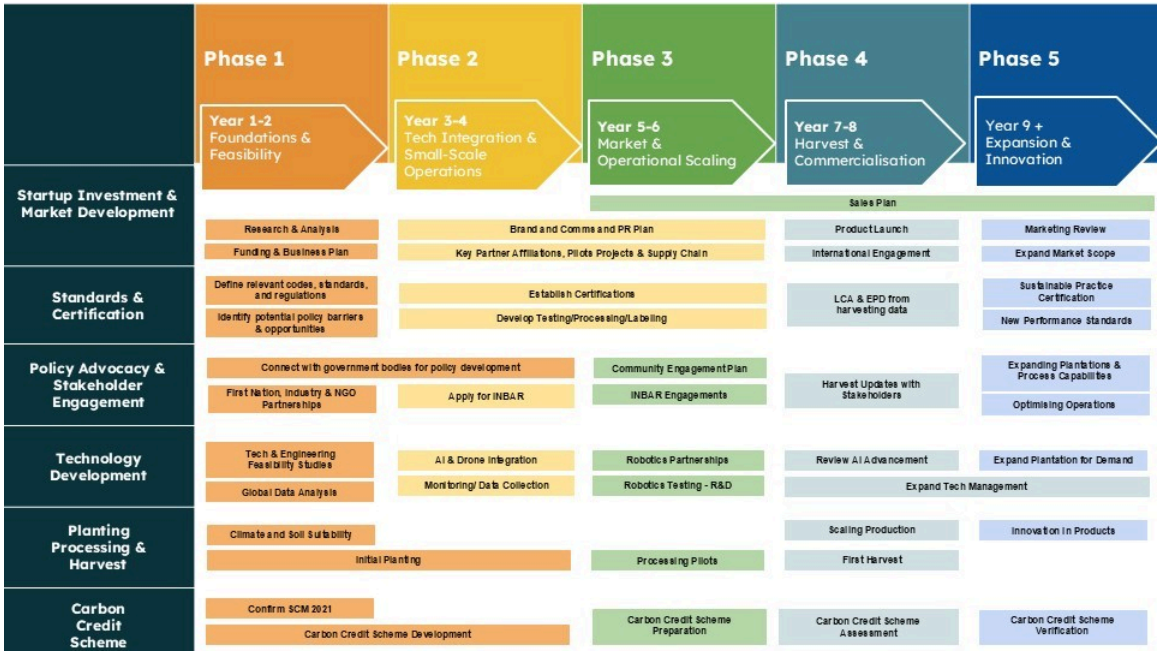


Image 4: Summary outline of key elements within the 10-year draft roadmap for SEB (Bamboo Society of Australia)

UNEP FIT Post-Summit Insights

Released this month (July 2025), the United Nations Environment Programme's Forum for Insurance Transition to Net Zero report, Underwriting the Transition, offers a framework for aligning insurance portfolios with net-zero goals. Led by the United Nations Environment Programme, with support from global insurers (e.g., Aviva, Beazley), academics (e.g., University of Technology Sydney's Gordon Noble), and Australian regulator APRA's Sean Carmody, the report estimates Structural Engineered Bamboo's potential climate impact at 3–25 million tons of carbon dioxide sequestered and 2.4–24 million tons avoided annually by 2035. It draws on the Science-Based Targets Initiative Financial Institutions Net-Zero Standard (2024), Glasgow Financial Alliance for Net Zero guidance (2022), and Transition Plan Taskforce metrics (2024). Structural Engineered Bamboo's drought resilience, moisture resistance, and 40% denser structure (with slower carbonisation than wood) enhance its insurance appeal, though durability tests are pending. This positions bamboo for underwriting risks and carbon credits, with the roadmap's research and development focus key to realisation.

Australian Sustainable Finance Taxonomy Alignment Note

The Australian Sustainable Finance Taxonomy, launched alongside the Next Frontier Summit for Bamboo, provides a foundation for green and transition finance to support net-zero goals. As part of the Government's broader Sustainable Finance Roadmap, this framework is poised for enhancement. However, the draft 10-year roadmap for Structural Engineered Bamboo, still in its early stages, has yet to fully inform the taxonomy with bamboo's potential, pending ongoing consultations. Still, bamboo aligns with the "Agriculture and Land" sector via its growth and carbon storage (aboveground biomass, belowground biomass, soil organic carbon up to 79 kg C/ha/yr) and the "Construction and Buildings" sector via Structural Engineered Bamboo's low embodied carbon (0.1–0.3 kg CO2e/kg) and high-emission material substitution. Its absence from technical screening criteria raises costs, while static life cycle assessments undervalue sequestration, necessitating dynamic assessments. Tailored First Nations Free, Prior, and Informed Consent protocols are also needed for agroforestry partnerships, per the Australian Sustainable Finance Taxonomy (June 2025).

With 69 days to World Bamboo Day, the time to act is now.

#Bamboo #SustainableFinance #ASFT #NetZero #CarbonMarkets #Biodiversity #EmbodiedCarbon #ClimateSolutions #SustainableConstruction

Structural bamboo construction of factory and showroom. Source: House of Bamboo

Bamboo: The Overlooked Game-Changer in Australia's Sustainable Future

Mansfield Advisory Pty Ltd
214 followers

June 5, 2025

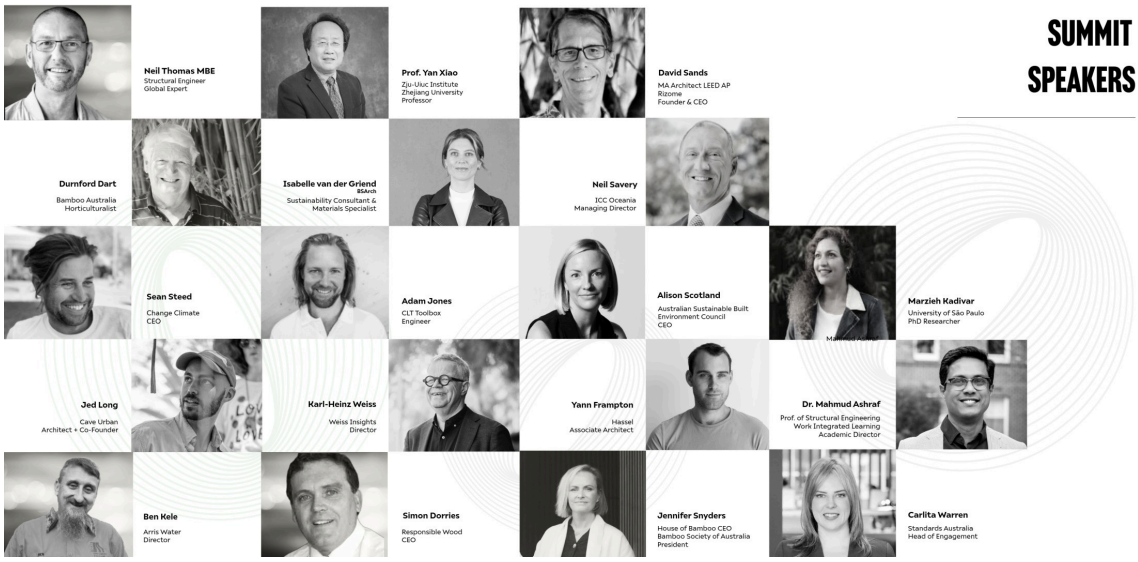
Recent national policy documents and reports—such as the **Circular Economy Strategy 2025**, the **Australian Forestry Industry Plan**, the **Carbon For Nature** 10-year roadmap, and the *Australian Climate and Biodiversity Foundation's Challenges and Opportunities for the Forest and Wood Product Industry*—have shaped critical conversations around sustainable forestry, circular economies, and climate action. The WWF's "*NSW Can End Native Forest Logging and Maintain Regional Jobs*" briefly acknowledges bamboo's role in carbon sequestration. Yet, these influential efforts, including the ambitious **Carbon For Nature** roadmap, consistently overlook bamboo's transformative potential—particularly through **structural engineered bamboo (SEB)** and large-scale plantations. This article highlights this oversight and calls for a broader, bamboo-inclusive approach to Australia's sustainability strategies.

For more on bamboo's ability to slash embodied carbon in construction, check out my previous **LinkedIn post**. Despite its promise, bamboo struggles to capture the attention of finance, investment sectors, and policy writers. Let's change that narrative.

The Next Frontier: Pioneering Australia's Bamboo Industry

Join us at **The Next Frontier: Pioneering Structural Engineered Bamboo in Australia**, a summit scheduled for June 2025. This event will unite stakeholders to craft a **10-year roadmap**, charting the path from bamboo plantations to harvests (achievable within five years) and the production of high-value materials like SEB. It will address regulatory hurdles, funding gaps, and investment needs while projecting economic returns and strategies to scale the industry.

This isn't just about planting bamboo—it's about building a robust ecosystem for processing, manufacturing, and market expansion, positioning Australia as a global leader in sustainable innovation.



The Next Frontier Summit - 18th to 20th June

The 10-Year Roadmap: From Planting to Prosperity

The proposed **10-year bamboo roadmap** leverages bamboo's rapid 5-7 year growth cycle—far outpacing timber's 20-60 years. Early harvests by year five will jumpstart production of SEB and bio-products like sisal ropes and biochar. Here's the breakdown:

- **Growing Bamboo**: Plant on degraded or non-arable land to maximise land use.
- **Harvesting and Production**: Begin processing bamboo into SEB and other products by year five.
- **Addressing Roadblocks**: Tackle regulatory barriers, secure funding, and bridge knowledge gaps.
- **Investment and Returns**: Attract capital with a compelling economic case and high returns.
- **Scaling the Industry**: Develop infrastructure and markets to support long-term growth.

This roadmap promises job creation, stronger regional economies, and significant strides toward Australia's sustainability goals.

Why Bamboo Deserves a Closer Look

Bamboo's advantages are compelling, yet they're sidelined by policies like the **Circular Economy Strategy 2025**, the **Australian Forestry Industry Plan**, and the **Carbon For Nature** roadmap:

- **Rapid Carbon Sequestration**: Bamboo sequesters carbon up to four times faster than many tree species and regenerates without replanting.
- **Land Use Efficiency**: It thrives on degraded land, preserving arable soil for food production.
- **Fast Land Regeneration**: Quick growth and strong root systems restore land cost-effectively.
- **Flexible Construction Standards**: SEB's strength aligns with performance-based building codes, sidestepping prescriptive biases.
- **Versatility Across Industries**: Its renewable nature supports applications in construction, textiles, and bio-products.
- **Superior mechanical properties:** Studies have indicated that Cross-Laminated Bamboo and Timber panels can have higher bending strength and modulus than Cross-Laminated Timber, meaning they are more resistant to bending and can carry larger loads.

Missed Opportunities in National Policy

The **Carbon For Nature** 10-year roadmap, alongside the **Circular Economy Strategy 2025** and **Australian Forestry Industry Plan**, overlooks bamboo's potential in critical areas:

- **Climate Action**: Bamboo's rapid carbon sequestration and continuous harvests are untapped tools for meeting emissions targets.
- **Land Restoration**: It could transform degraded areas into productive, sustainable systems.
- **Construction Innovation**: SEB offers a low-carbon alternative to traditional timber and steel, yet it's absent from these strategies.

These gaps narrow the scope of Australia's sustainability ambitions, missing a chance to leverage bamboo's unique strengths.

The Circular Economy Narrative: Bamboo's Perfect Fit

Bamboo aligns seamlessly with the circular economy, offering regenerative harvests, low-energy processing, and bio-products that narrow, close, slow, and regenerate resource loops. Yet, the **Circular Economy Strategy 2025** fails to capitalise on this—a gap highlighted in the **Productivity Commission submission** by Mansfield Advisory and the Bamboo Society of Australia. The submission underscores SEB's triple-bottom-line benefits:

- **Environmental**: Carbon sequestration, biodiversity gains, and land restoration.
- **Economic**: Job creation, new markets, and regional development.
- **Social**: Community resilience and sustainable growth.

It calls for government support through cultivation strategies, funding, and pilot projects, noting that current R&D and grants sideline bio-based material opportunities that are not timber—an imbalance the roadmap seeks to correct.

Why This Matters Now

Bamboo could accelerate Australia's climate targets, rehabilitate degraded lands, and drive economic growth. Ignoring it risks:

- **Slower Climate Progress**: Overlooking a fast, scalable carbon sink.
- **Economic Stagnation**: Missing out on a burgeoning industry with regional benefits.
- **Innovation Delay**: Sticking to traditional standards instead of embracing alternatives.

The summit and roadmap propose a modest yet impactful goal: a **3-5% substitution of timber with bamboo by 2035**, as outlined in the Productivity Commission submission. This could reduce the amount of imported timber with locally produced, structurally engineered bamboo.

A Call to Action

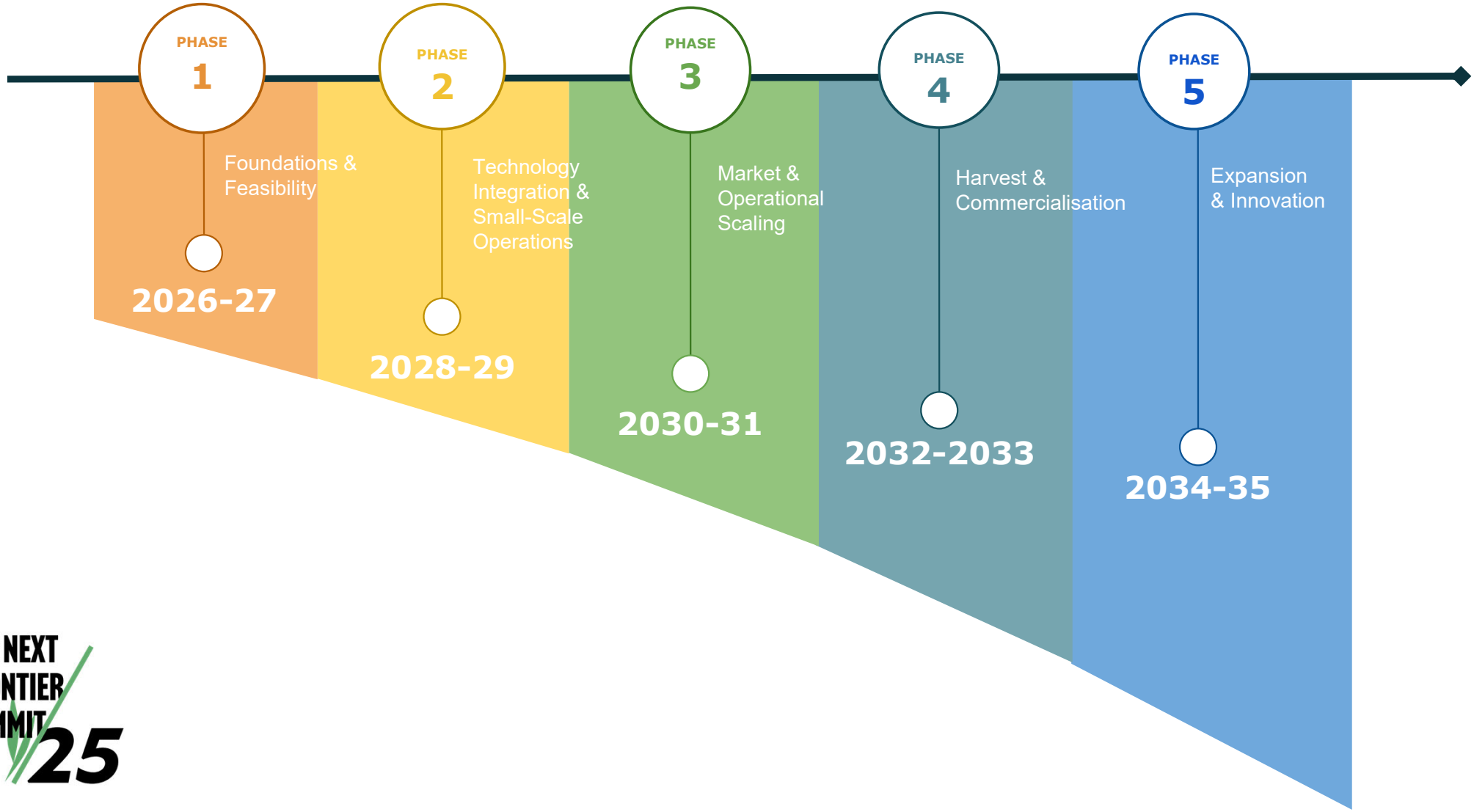
Bamboo's potential is clear, but it needs collective effort to take root. Join us at **The Next Frontier Summit** in June 2025 to shape a sustainable future. Here's how you can contribute:

- **Government and Policymakers**: Integrate bamboo into R&D, grants, and policy frameworks.
- **Researchers**: Advance harvesting and processing technologies.
- **Investors**: Back a high-return, low-carbon intensity material industry.

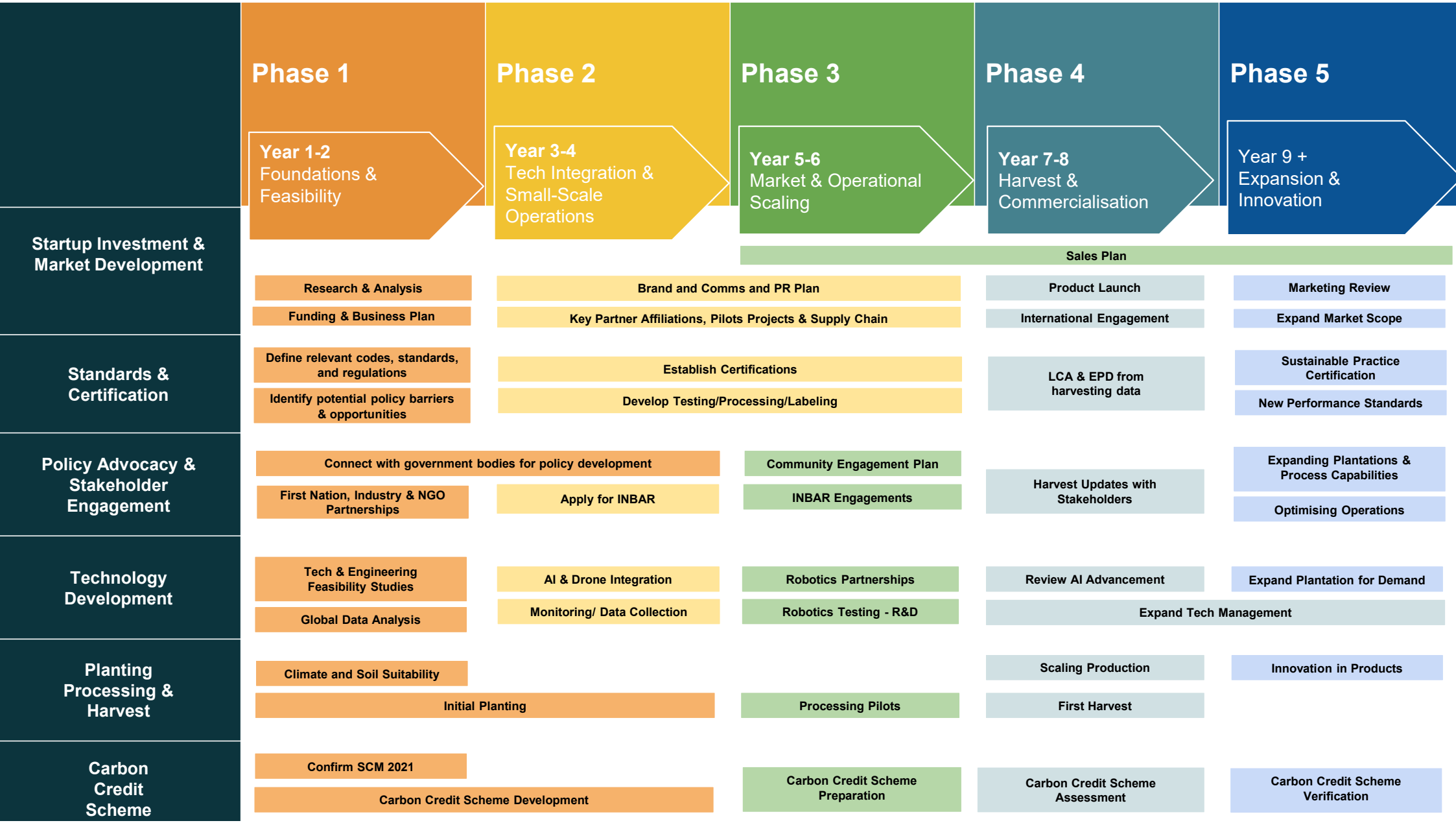
- **Supply Industry**: Scale up a fast-growing and rapidly renewable resource.
- **Demand Side**: Advocate for low-carbon materials like SEB. Support pilots and demonstration projects.
- **Experts and Report Writers**: Highlight bamboo in your analyses and strategies.

Together, we can dismantle barriers, secure funding, and grow the bamboo industry. The summit is your opportunity to co-create a 10-year plan that delivers climate action, economic prosperity, and land restoration. Register for the upcoming Summit here. Let's position Australia as a bamboo powerhouse.

10 YEAR ROADMAP SUMMARY



THE NEXT FRONTIER SUMMIT 25


Phase 1
Year 1-2
Foundations & Feasibility
Phase 2
Year 3-4
Tech Integration & Small-Scale Operations
Phase 3
Year 5-6
Market & Operational Scaling
Phase 4
Year 7-8
Harvest & Commercialisation
Phase 5
Year 9 +
Expansion & Innovation
Startup Investment & Market Development
Sales Plan
Research & Analysis
Brand and Comms and PR Plan
Product Launch
Marketing Review
Funding & Business Plan
Key Partner Affiliations, Pilots Projects & Supply Chain
International Engagement
Expand Market Scope
Standards & Certification
Define relevant codes, standards, and regulations
Establish Certifications
LCA & EPD from harvesting data
Sustainable Practice Certification
Identify potential policy barriers & opportunities
Develop Testing/Processing/Labeling
New Performance Standards
Policy Advocacy & Stakeholder Engagement
Connect with government bodies for policy development
Community Engagement Plan
Expanding Plantations & Process Capabilities
First Nation, Industry & NGO Partnerships
Apply for INBAR
INBAR Engagements
Harvest Updates with Stakeholders
Optimising Operations
Technology Development
Tech & Engineering Feasibility Studies
AI & Drone Integration
Robotics Partnerships
Review AI Advancement
Expand Plantation for Demand
Global Data Analysis
Monitoring/ Data Collection
Robotics Testing - R&D
Expand Tech Management
Planting Processing & Harvest
Climate and Soil Suitability
Scaling Production
Innovation in Products
Initial Planting
Processing Pilots
First Harvest
Carbon Credit Scheme
Confirm SCM 2021
Carbon Credit Scheme Development
Carbon Credit Scheme Preparation
Carbon Credit Scheme Assessment
Carbon Credit Scheme Verification

10 YEAR ROADMAP - STRUCTURAL ENGINEERED BAMBOO

	Phase 1: Foundations and Feasibility (Year 1-2)	Phase 2: Tech Integration and Small-Scale Operations (Year 3-4)	Phase 3: Market and Operational Scaling (Year 5-6)	Phase 4: Harvest and Commercialisation (Year 7-8)	Phase 5: Expansion and Innovation (Year 9 onwards)
Startup Investment & Market Development	▪ Conduct a Feasibility Study: Develop a whitepaper assessing the feasibility of local structural engineered bamboo production. ▪ Secure Initial Funding: Prepare investment pitches to attract initial funding and develop comprehensive funding plans. ▪ Economic Analysis: Conduct a broader economic impact analysis to understand the potential of the SEB industry on Australian economy, including job creation, regional economic benefits, and overall investment attractiveness. ▪ Business Plan/DCF for individual project / plantation assessments of viability ▪ Analyse Market Potential: Evaluate the existing wood product market, its growth potential, and the market opportunities for bamboo. ▪ Define the Market Entry Strategy: Determine how bamboo will gain market share, and identify the initial target markets ('beachhead markets')	▪ Establish branding for Australian bamboo products. ▪ Prototype projects to pilot and demonstrate use in market(s), leverage, webinars and media outlets ▪ Anchor major partners in building sector market(s) ▪ Set up initial distribution and supply chain networks.	▪ Prior to first harvest, focus on developing the market ▪ Branding, partnerships, and setting up distribution channels.	▪ Launch bamboo products in domestic market. ▪ Host or participate in international bamboo conferences	▪ Adjust marketing strategies based on initial sales feedback. ▪ Broaden market offerings
Standards / Certification	▪ Identify relevant codes, standards, and regulations & potential policy barriers and opportunities ▪ Engage with Responsible Wood ▪ TM11 Engineered Timber Standard engagement ▪ Engage with Qld DAF on durability testing SEB ▪ Structure and Fire Testing on SEB	▪ Establish Responsible Wood certification agreement ▪ Structural Engineered Bamboo – Imported Product Testing / Demonstration projects use	▪ Certified plantation ▪ SEB Product Testing ▪ SEB Product Labelling ▪ Certify products upon processing	▪ Undertake LCA and EPD based on actual harvesting data	▪ Achieve certifications for sustainable practices. ▪ Possibly lead in setting new performance standards for bamboo products and/or building systems
Policy Advocacy / Stakeholder Engagement	▪ Initiate dialogue with government bodies for supportive policies. ▪ NGO Engagement: WWF Future Forests ▪ Associations: NFF, NRM, Cane Growers ▪ Explore First Nations opportunities ▪ Engagement with CEFC, NAIF, NRF, IIG	▪ Submit application for Australia to join INBAR. ▪ Develop partnerships	▪ Leverage INBAR for international trade shows and market introductions. ▪ Implement community engagement programs.	▪ Share updates on harvesting with stakeholders	▪ Continue expanding plantations and processing capabilities, optimizing operations with data from initial cycles.
Technology Development	Conduct Market and Feasibility Studies: ▪ Analyse global and local demand for bamboo products, including structural engineered bamboo ▪ Startup Investment: Utilise feasibility study for seeking investment.	▪ Research and select AI and drone technology providers. ▪ Start small-scale implementation for monitoring and data collection. ▪ Integrate AI for plantation for monitoring growth conditions and predicting harvest yields ▪ Use drone data to refine planting strategies.	▪ Partner with robotics firms or universities for R&D. ▪ Prototype testing in controlled environments. ▪ Start developing or adapting robotic systems for bamboo harvesting, aiming for operational readiness by the first harvest cycle .	▪ Expand AI systems for broader plantation management ▪ Regularly review and adapt operational practices based on technological advancements and market changes.	▪ Further expand plantations considering market demands.
Planting / Processing & Harvest	Climate and Soil Suitability / Initial Planting ▪ Complete identification of optimal regions for bamboo cultivation. ▪ Secure land agreements or purchases. ▪ Begin trials with different bamboo species. ▪ Define management practices to maximise environmental benefits, focusing on carbon sequestration, biodiversity, and community engagement	Continue Planting ▪ Scale up planting based on initial trial results. ▪ Broaden scaling up of planting ▪ Test various bamboo products, focusing on SEB.	Processing Pilots ▪ Design and build pilot plants for bamboo processing for SEB development ▪ Enhance biodiversity measures in plantations. ▪ Increase plantation areas significantly	First Harvest ▪ Begin harvesting using developed technologies. ▪ Evaluate and refine harvesting Scaling Production ▪ Scale up processing facilities and expand plantations based on market feedback and technological performance	Innovation in Products ▪ Invest in R&D for new applications ▪ Patent new technologies or processes developed. ▪ Publish findings and innovations from the project.
Carbon Credit Scheme	Confirm applicability of Soil Carbon Method 2021 Carbon Credit Scheme Development: ▪ Submit EOI method for bamboo quantification carbon forestry (BFCQ) ▪ Develop methodology for bamboo carbon sequestration (soil carbon if not part of existing soil carbon method) and above ground biomass). ▪	Carbon Credit Scheme Development: ▪ Undertake Benchmark Carbon stock assessment/s: compliant sampling and testing before any soil improvements ▪ Preparing for implementation post-first harvest. ▪ Approval of bamboo carbon forestry method	Carbon Credit Scheme Development ▪ Preparing for implementation post-first harvest.	Carbon Credit Scheme Development ▪ Carbon stock assessment ▪ Soil carbon assessment ▪ Verification by 3rd party	Carbon Credit Scheme Development ▪ Carbon stock assessment ▪ Growth measurement ▪ Soil carbon assessment ▪ Verification y 3rd party ▪ Re-estimate carbon stocks every 5 years (first re-estimate in year 12
Risk Mngt	▪ Conduct Comprehensive Risk Assessment Study and identify potential risks in market entry, land acquisition, environmental impact, and initial investment. This study should include legal, environmental, financial, and operational risks including carbon credit/s generation. ▪ Quarterly Risk Review Meetings	▪ Technology and Operational Risk Workshop on risks associated with new technology integration (AI, drones, robotic harvesting). ▪ Focus on technology failure, integration issues, and scalability risks. ▪ Quarterly Risk Review Meetings	▪ Market Entry Risk Analysis including competition, demand volatility, supply chain disruptions, and regulatory changes. ▪ Develop contingency plans for identified high-impact risks. ▪ Quarterly Risk Review Meetings	▪ Product Launch and Harvest Risk Review on harvest yield uncertainties, quality control, logistics, and market reception. ▪ Stress testing of the supply chain under different scenarios. ▪ Quarterly Risk Review Meetings	▪ Expansion Risk Assessment ▪ Quarterly Risk Review Meetings