RMCG

Product Stewardship Centre of Excellence

MARCH 2024

Treated Timber Stewardship Scheme Design Prospectus

Treated Timber Product Stewardship Working Group

Level 1 East, 1100-1102 Toorak Road, Camberwell Victoria 3124
rmcg.com.au — ABN 73 613 135 247 — RM Consulting Group Pty Ltd
Victoria — Tasmania — NSW

Certified B Corporation

Table of Contents

Prospectus

This prospectus outlines the purpose, benefits, approach and estimated costs of designing and establishing a treated timber stewardship scheme in Australia, with an initial focus on copper, chromium and arsenic (CCA) treated timbers used in the viticulture and horticulture industries.

CALL TO ACTION AND FUNDING REQUEST

- Disposal of CCA treated timber to licenced landfill is currently the only legal pathway for its end-of-life management. This pathway is rarely used by the agricultural sector because of the cost and logistics involved.
- Consequently, users of CCA treated timber, particularly those involved in viticulture and horticulture, have been stockpiling used CCA treated posts on their properties, with many at capacity. These stockpiles are likely to grow soon as vineyards are removed in response to the current downturn in the wine sector. Stockpiles of CCA treated timber pose a significant risk during bushfires.
- While the majority of used CCA posts are stockpiled, there is evidence that some are being incorrectly disposed of resulting in potentially significant risk to the environment and human health.
- A stewardship scheme would initially focus on improving end-of-life management of CCA treated timber associated with the viticulture and horticultural sectors; increase understanding and collaboration across the supply chain; and develop environmentally improved solutions suitable for all end-of-life treated timber.
- The Treated Timber Product Stewardship Working Group requires $1 million in government funding to design and test a comprehensive national stewardship scheme that engages key stakeholders and builds industry understanding and ownership over the next two years to January 2026.

THE PROBLEM

Treated timber has been used in Australia for approximately 50 years, with the dominant preservative used being a formulation of copper, chromium and arsenic known as CCA. CCA treated timber is used in the horticulture and agricultural industries as round posts and in the construction industry for framing. It is typically in-situ for approximately 30-40 years[6] depending on its application. Approximately 2.1 million m^3 of treated timber enters the market each year, 0.9 million m^3 of which is CCA treated timber.

A large volume of CCA treated timber will become waste in the coming years, exacerbated in the very short term by the downturn in the Australian wine industry and potential removal of large areas of vineyards. **An immediate solution is required to manage the likely spike of waste CCA treated timber, in addition to the 50 years of remnant legacy material. There is currently no viable technology to deal with the end-of-life hazardous material.**

CCA treated timber when disposed of incorrectly can have potentially significant environmental and human health implications, due primarily to the arsenic content of CCA used to protect the timber against insects and wood rot[1], and hexavalent chromium in ash if burnt.

[1] Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review

This was recognised formally by the Australian Pesticides and Veterinary Medicines Authority (APVMA) in 2012, and by multiple overseas jurisdictions including Denmark, Switzerland and Indonesia.[2] The wine sector in particular, is concerned by the threat to its international sustainability credentials if the end-of-life management of used CCA posts is not improved. The need for a solution, the impending increase in volumes for disposal and the international concern is why the initial focus of product stewardship will be on CCA treated timber.

Currently the disposal pathway for CCA treated timbers is predominately stockpiling, landfill, burning and dumping, with a small amount being re-used[3]. In many locations, landfill fees increase annually[4] and it is likely that these fees combined with the high cost of transport act as a disincentive to responsible disposal, encouraging the stockpiling of posts on private land along with instances of illegal burning and dumping. Burning CCA treated timber, either illegally or during bushfires, releases arsenic into the atmosphere and/or leaches copper, chromium and arsenic into soil and waterways, causing potentially significant risk to the environment and human health. This likelihood represents a clear market failure and role for government investment in conjunction with industry. In addition, these existing disposal pathways do not align well with social and market requirements for higher value management of waste. Given the move towards Environmental, Social and Governance (ESG) reporting requirements, there is a valid concern that current management of end-of-life CCA timber will risk market access for Australian exporters.

An added complexity results from the inability or difficulty to identify non treated from treated timber, which means a larger proportion of potentially compostable and reusable timber waste is ending up in landfill. This is compounded by tracking and disposal requirements differing between jurisdictions.

PROPOSED SOLUTIONS

The proposed Treated Timber Stewardship Scheme will address the reuse, recycling, recovery and treatment of treated timber in Australia. The initial focus will be on CCA treated timber and centred on the viticultural and horticultural industries because of the legacy stockpiles stored on grower properties, expected spike in post removal from vineyards, and threat to sustainability credentials and market access. Learnings from this phase will inform subsequent strategies for the end-of-life management of CCA treated timber used in other industries, and for timber treated with other preservatives.

The desired short to medium-term outcomes from this scheme are[5]:

Improved end-of-life management of CCA treated timber in Australia

- Reduce the hazardous health and environmental risks from stockpiling and current poor disposal practices of CCA treated timber.
- Identify, evaluate and promote accessible and environmentally preferred end-of-life solutions for all treated timber that diverts material from landfill and minimises greenhouse gas emissions.
- Make it straightforward, easy and economically viable for users to responsibly dispose of products.
- Encourage the development of common Australian systems and nomenclature for managing end-of-life treated timber.

Increased understanding and collaboration across the supply chain

- Improve community understanding of appropriate end-of-life management of treated timber and the risks of incorrect disposal.

---

2 Lansbury, N. & Beder, S. (2005) Treated Timber, Toxic Time-bomb: The Need for a Precautionary Approach to the Use of Copper Chrome Arsenate (CCA) as a Timber Preservative, University of Wollongong

3 Timber Preservers Association of Australia (2015) Technical Note 8: Disposal of treated wood

4 For example, see: https://www.epa.sa.gov.au/business_and_industry/waste-levy

5 Adapted from: Treated Timber Product Stewardship Working Group (2023) Introductory letter

- Educate the treated timber supply chain and users of their environmental stewardship responsibilities.
- Work with all spheres of government regarding education, transitional planning, governance, and management.
- Work with industry sectors most exposed to risks and help find design solutions.

Circular economy solutions for treated timber

- Contribute to a circular economy and culture across the treated timber value chain, through shared responsibility and collaboration.
- Identify and promote timber treatments and end-of-life solutions which achieve best practice for circularity, emissions reduction and overall environmental performance.
- Seek superior environmental outcomes across the whole sector regarding the manufacture, use and disposal of treated timbers.

The stewardship scheme would be modular, with an initial focus on CCA treated timbers in viticulture and horticulture and the ability to add further treated timber products and sectors (e.g. utilities, construction) through a phased approach that is adjusted to meet specific applications.

NEXT STEPS

Funding

The Treated Timber Product Stewardship Working Group requires $1 million in government funding over the next two years to January 2026 to design and test a model for a national stewardship scheme that engages key stakeholders, and builds industry understanding and ownership. Funding of the scheme after this point is expected to be from industry contributions.

Stakeholder engagement and data gaps

Key to successful stewardship scheme design, operation and implementation is effective stakeholder engagement across the supply chain. High levels of industry, business and government participation, and investment, is essential for realising the environmental, social and economic benefits of product stewardship. Collaboration with the horticulture and wine sectors, who will play a key role in the scheme design and implementation, is essential. The scheme will also be developed in consideration of, and collaboration with, the industry and Research and Development Corporation (RDC)-funded 'Timber Circularity Project' within the National Centre for Timber Durability and Design Life, University of the Sunshine Coast. That project will assist to address critical data gaps.

Table ES-1: Key tasks and budget for the Treated Timber Product Stewardship Working Group

TASK	WORKING GROUP ACTIVITY	FUNDING REQUEST	EXPECTED TIMEFRAME
Stage 1: Problem and product scope			**6 months**
Define and quantify the problem of CCA treated timber waste	Appoint Executive Officer for the Treated Timber Product Stewardship Working Group and develop project and stakeholder engagement plans. Fill data gaps in material flow, including identifying current end-of-life options, classifications and regulatory pathways within each state.	$100,000 / year for two years ($200,000)	May-Oct 2024

TASK	WORKING GROUP ACTIVITY	FUNDING REQUEST	EXPECTED TIMEFRAME
Confirm scope of products to be included in the scheme	Engage with industry stakeholders to confirm scale of problem, scope and priority of treated timber products. Engage with governments and state EPAs throughout Stages 1-5.	$100,000	
Stage 2: Solutions and outcomes			**12 months**
Develop and pilot solutions for CCA treated timber waste	Analyse feasibility of end-of-life solutions for CCA treated timber against the waste management hierarchy, by industry segment. Undertake pilots to test collection, transport and reuse/recycling to inform the detailed design of the scheme.	$200,000	Aug 2024 - Jul 2025
Agree and describe outcomes	Agree and document desired environmental, economic and social outcomes, as well as the benefits of improved end-of-life management of treated timber.	$100,000	
Stage 3: Finance and governance			**12 months**
Determine scheme funding	Undertake economic modelling and financial analysis to determine the operating costs of the scheme, include in implementation plan. Conduct cost benefit analysis for the environmental, social and economic impact of the scheme.	$100,000	Nov 2024 - Oct 2025
Outline scheme governance and administration	Investigate and determine scheme governance structures and administrative procedures, include in implementation plan.	$100,000	
Stage 4: Risk management and operations			**12 months**
Understand risks	Identify, analyse and mitigate scheme risks, with consideration of legislative drivers, include in implementation plan.	$50,000	Feb 2025 – Jan 2026
Document operational principles and procedures	Develop operational principles and procedures, include in implementation plan.	$150,000	
Total	**Government funding**	**$1,000,000**	**over 2 years**
Stage 5: Establish scheme and commence implementation (industry funded)			**From early 2026**
Establish scheme	Develop establishment and delivery plan. Establish new scheme entity (PSO). Undertake PSO/scheme planning, including further stakeholder engagement and communication. Launch and operate scheme.	$750,000	
Total	**Industry funding**	**$750,000**	**per annum**

Attachments to support the Prospectus

1 Purpose and context

1.1 THIS PROSPECTUS

This prospectus is an invitation to government and industry to invest in the design and testing of a model for a Treated Timber Stewardship Scheme that will implement solutions to deliver improved environmental and human health outcomes for the disposal and reuse of treated timber.

The Treated Timber Product Stewardship Working Group is a voluntary led group comprising representatives from across the industry sector with expertise in design, manufacturing and use and disposal of treated timbers, as well as state government and the waste and recycling sectors.

This prospectus was developed by RMCG and the Product Stewardship Centre of Excellence for the Treated Timber Product Stewardship Working Group, with funding support from Wine Australia.

1.2 GOALS AND OUTCOMES

The goals of the proposed Treated Timber Stewardship Scheme include:

Improved end-of-life management of CCA treated timber in Australia

- Reduce the hazardous health and environmental risks from stockpiling and current poor disposal practices of CCA treated timber.
- Identify, evaluate and promote accessible and environmentally preferred end-of-life solutions for all treated timber that diverts material from landfill and minimises greenhouse gas emissions.
- Make it straightforward, easy and economically viable for customers to responsibly dispose of products.
- Encourage the development of common Australian systems and nomenclature for managing end-of-life treated timber.

Increased understanding and collaboration across the supply chain

- Improve community understanding of appropriate end-of-life management of treated timber and the risks of incorrect disposal.
- Educate the treated timber supply chain and users of their environmental stewardship responsibilities.
- Work with all spheres of government regarding education, transitional planning, governance, and management.
- Work with the industry sectors most exposed to risks and help to find and design solutions.

Circular economy solutions for treated timber

- Contribute to a circular economy and culture across the treated timber value chain, through shared responsibility and collaboration.
- Identify and promote timber treatments and end-of-life solutions which achieve best practice for circularity, emissions reduction and overall environmental performance.
- Seek superior environmental outcomes across the whole sector regarding the manufacture, use and disposal of treated timbers.

1.3 SCOPE OF PRODUCTS

This proposed scheme covers all types of treated timber products used in Australia; however, its initial focus will be on CCA treated timber, with the priority in the first two years on solutions for posts used in vineyards and horticulture given the imminent waste stream being created from the economic downturn within the wine sector and expected removal of vineyards.

CCA treated timber is used across a range of industries, as outlined below:

Table 1-1: Application and estimated amount of CCA treated timber by industry

INDUSTRY	APPLICATIONS	ESTIMATED AMOUNT[6]
Horticulture	Round posts for vine and tree crop trellising, shade/hail net structures and fencing	150,000 m^3
Agriculture	Round posts for fencing	
Utilities	Electricity poles	130,000 m^3
Construction	Structural frames	200,000 m^3
Landscaping	Fence rails and palings Plinths Sleepers	500,000 m^3

1.4 GOVERNMENT AND INDUSTRY POLICY CONTEXT

RELEVANT FEDERAL POLICY AND GUIDELINES

The *Recycling and Waste Reduction Act 2020* is administered by the Australian Government. It encourages and regulates:

- Reuse, remanufacture, recycling and recovery of products, waste from products and waste material in an environmentally sound way.
- Manufacturers, importers, distributors, designers and other persons to take responsibility for products, including by taking action that relates to:
  - i. reducing or avoiding generating waste through improvements in product design;
  - ii. improving the durability, reparability and reusability of products; and
  - iii. managing products throughout their life cycle.

The *Recycling and Waste Reduction Act 2020* provides tools and mechanisms to support Australia's transition to a circular economy including the product stewardship regimes – voluntary, coregulatory and mandatory.

The National Waste Policy proposes less waste and more resources by defining a framework for collective action by business, governments, communities and individuals. The policy incorporates the waste hierarchy, and a focus on high order uses, while building on the idea of continually reusing, recycling and reprocessing materials. We understand the Policy Action Plan is currently being revised to incorporate a circular economy focus including designing out waste and a product stewardship approach.

The Policy promotes the application of circular economy principles including the need to:

1. Avoid waste.
2. Improve resource recovery.

[6] Arxada Australia (2022) Australian timber market data; Ward, S. (2023) Personal communication, 30 October

3. Increase use of recycled material and build demand and markets for recycled products.
4. Better manage material flows to benefit human health, the environment and the economy.
5. Improve information to support innovation, guide investment and enable informed consumer decisions.

This prospectus aligns with principles: *2 – Improve resource recovery*; *4 – Better manage material flows to benefit human health, the environment and the economy*; and *5 – Improve information to support innovation, and guide investment, and enable informed consumer decisions*.

The National Waste Policy Action Plan 2019 presents targets and actions to implement the waste policy and guide investment and national efforts to 2030 and beyond. Four of the targets of the Plan, described below, are relevant to this project:

- Reduce total waste generated in Australia by 10% per person by 2030
- 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030
- Significantly increase the use of recycled content by governments and industry
- Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

Circular Economy Ministerial Advisory Group: Guiding the nation's transition to a circular economy by 2030.

Australian Standard 5605–2007: Guide to the safe use of preservative treated timber.

Safe Work Australia National Code of Practice and guidance note for the safe handling of timber preservatives and treated timber (1989).

As the national agricultural chemical regulator, the Australian Pesticides and Veterinary Medicines Authority is responsible for the approval, regulation and labelling of the chemical preservative compounds used to treat timber. Manufacturers wanting to register chemical treatments must demonstrate their effectiveness and safety.

The Australian Building Codes Board administers the National Construction Code (NCC), which sets technical standards for the correct use of treated timber for construction. The NCC refers to various Australian Standards to ensure that the timber products used are fit for purpose.

The Agriculture, Fisheries and Forestry National Waste and Resource Recovery Roadmap provides a clear pathway for how industries can deal with waste issues applying the principles of a circular economy and the waste hierarchy to 2030. The Roadmap highlights the barriers to implementation of improved waste management practices, as well as identifies the support that is required for each industry at a regional level considering: specific sector needs; different waste streams; and regional variances.

This will ensure the agriculture, fisheries and forestry sector is well-equipped to tackle waste issues, such as end of life timber products, sustainably, and that waste management initiatives are aligned with national and state approaches and supported by industry and the community[7].

RELEVANT STATE AND TERRITORY POLICY AND LEGISLATION

The state and territory legislation guiding waste and resource recovery is outlined below, in addition to Environment Protection Acts for all states.

[7] AgriFutures Australia (2022) Agriculture, Fisheries and Forestry National Waste and Resource Recovery Roadmap, October, prepared by RMCG

Table 1-2: State-based legislation guiding waste and resource recovery

STATE	RELEVANT LEGISLATION
New South Wales	*Waste Avoidance and Resource Recovery Act 2001*
Victoria	*Circular Economy Waste Reduction and Recycling Act 2021* *Environment Protection Act 2017*
South Australia	*Environment Protection Act 1993* supported by *Waste to Resources Policy 2010* *Green Industries SA Act 2004*
Western Australia	*Waste Avoidance and Resource Recovery Act 2007*
Queensland	*Waste Reduction and Recycling Act 2011*
Northern Territory	*Waste Management and Pollution Control Act 1988*
Tasmania	*Environmental Management and Pollution Control (Waste Management) Regulations 2020*
Australian Capital Territory	*Waste Management and Resource Recovery Act 2016* *Circular Economy Bill 2023* (passed)

Resource Recovery Orders NSW

These allow some wastes to be beneficially and safely re-used independent of the usual NSW laws that control applying waste to land, using waste as a fuel, or using waste in connection with a process of thermal treatment. Treated timber not currently listed. NSW has had a long interest in formulating solutions for treated timber.

Queensland End of Waste (EOW) Codes and Guidelines

Where a waste can be deemed a resource, an approval can be granted for a temporary period to conduct a trial to demonstrate whether the waste can be used as a resource safely.

South Australia Guidelines

EPA Waste Management Guideline – EPA 572/16 is a guideline offering advice to industry on the interim storage and management of CCA treated timber waste. Facilities exist for landfill of this material however they are located close to Adelaide, away from regional centres, adding cost and complexity to disposal. Small volumes of CCA treated timber have been accepted for energy recovery by one facility. Green Industries SA has a Circular Procurement Knowledge Hub which provides information on buying refurbished, reused, and recycled products as well as tools policies and guidelines for businesses to be part of the circular economy.

RELEVANT INDUSTRY GUIDELINES

Australian Biochar Industry 2030 Roadmap

Initiative 6: Encourage beneficial use of residual or waste biomass by enhancing and maintaining biomass availability assessment tools to aid industry capacity to grow by reliably quantifying and sourcing sustainable biomass.

1.5 ROLE OF STEWARDSHIP SCHEMES

With the increase in demand and legislative requirements for transparency of product and company Environment, Social and Governance (ESG) commitments, the cost of not managing a product's environmental and human health impacts is growing. Further to this, the social licence to operate granted by consumers, stakeholders and employees significantly influences current product and service delivery in Australia.

Product stewardship and extender producer responsibility (EPR) requires producers, importers and retailers to take primary responsibility for the environmental and human health impacts of products throughout their entire lifecycle (production, consumption and post consumption or end of life). This includes economic and physical responsibility for the end-of-life options of products placed on the market by a producer, importer and retailer.

Product stewardship actions provide an implementation pathway for businesses to operationalise the circular economy by designing out waste and pollution, keeping products and materials in the economy and regenerating the environment (Figure 1-1).

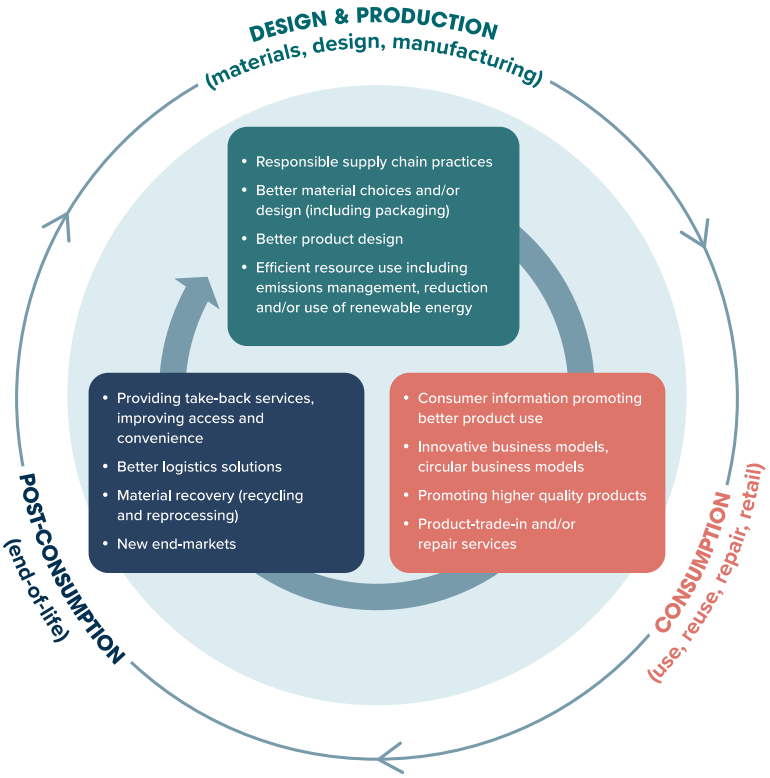

Figure 1-1: Product stewardship actions across the lifecycle

2 Problem definition

2.1 URGENCY OF LEGACY CCA TREATED TIMBER WASTE

CCA treated timber posts used within the viticulture and horticulture sectors have historically been purchased largely without consideration for end-of-life disposal. In addition, many growers believe they should not bear the cost of disposal as the posts were sold without any indication there would be an end-of-life management cost[8]. The recent downturn in the viticulture industry has highlighted the lack of appropriate disposal pathways as CCA treated timber posts are stockpiled, illegally burned or dumped, or sent to landfill at an increasing cost. Some of these disposal pathways pose potentially significant risks to the environment and human health, given the toxic nature of the CCA chemicals. Furthermore, it is likely that this issue will be exacerbated as growers continue to remove the estimated 70 million CCA posts already installed in Australian vineyards[9].

CCA treated timber when handled, used and disposed of incorrectly can have environmental and human health implications, due primarily to the arsenic content of CCA used to protect the product against insects and wood rot[10], and hexavalent chromium in ash if burnt[11]. This was recognised formally by the Australian Pesticides and Veterinary Medicines Authority (APVMA) in the early 2000s when CCA treated timber was restricted for use in playgrounds or other intimate settings where it would be in direct contact with humans[12], and by multiple overseas jurisdictions including Denmark, Switzerland and Indonesia[13].

In 2012, the APVMA declared CCA a restricted chemical product requiring only certified personnel to handle the chemicals. While alternative treatments are now available such as Alkaline Copper Quaternary (ACQ) or Light Organic Solvent-borne Preservatives (LOSPs), they are considerably more expensive ($5/m^3 for CCA vs $90m^3 for creosote),[14] and research suggests that these will also have heavy metal leaching issues at end-of-life[15].

2.2 FLOWS AND FATES OF CCA TREATED TIMBER IN AUSTRALIA

OVERVIEW

The timber industry plays a vital role within the Australian economy providing a sustainable, low-cost product used in many industries including horticulture, agriculture, utility services, construction and landscaping. Some of this timber (i.e. softwood, hardwood and engineered timber), is treated to successfully prolong its useful life and to prevent degradation from borers, termites, bacteria and fungi.

PRODUCTION AND USES

A total of 2.1 million m^3 or 45% of the Australian timber market is comprised of treated products, of which an estimated 0.9 million m^3 (i.e. nearly half) contains CCA.

8 Wine Australia (2022) Grower survey undertaken for the Timber Circularity Project
9 University of the Sunshine Coast (2023) Timber Circularity Project preliminary data, October
10 Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review
11 DCCEEW (2022) Chromium compounds III
12 APVMA (2005) The Reconsideration of Registrations of Arsenic Timber Treatment Products (CCA and arsenic trioxide) and Their Associated Labels
13 Lansbury, N. & Beder, S. (2005) Treated Timber, Toxic Time-bomb: The Need for a Precautionary Approach to the Use of Copper Chrome Arsenate (CCA) as a Timber Preservative, University of Wollongong
14 Ward, S. (2023) Personal communication, 30 October
15 Kim et al. (2020) Overview of biochar production from preservative-treated wood with detailed analysis of biochar characteristics, heavy metals behaviours, and their ecotoxicity

Almost three quarters (70%) of the Australian CCA treated timber market is supplied by two manufacturers – Koppers Performance Chemicals and Arxada Australia[16].

Based on data from 2022 from one of the two main manufacturers, it is estimated that approximately 900,000 m^3 of CCA treated timber enters the Australian market each year (Table 2-1). Given its durability, these timber products are likely to remain in-situ for at least 30-40 years depending on its application and likely longer within buildings where they are more protected. It is currently estimated that there are 70 million CCA treated posts still in situ (excluding those already stockpiled) within the wine industry alone[17].

However, given the recent economic downturn in the Australian wine market and a consequential reduction in demand for grapes, vineyards are expected to be removed adding to the significant legacy stockpile of CCA posts. Across Australia, it is estimated that between 1.3 million and 3.3 million CCA treated posts were removed in 2022, with the range dependent on the assumed level of breakage[18]. These totals are conservative in that they don't include posts accumulated from vineyard removals. The majority of CCA treated posts are currently being stockpiled given the relatively high cost of disposal into landfill, which in South Australia can be $5.50 per post[19].

Table 2-1: Estimated amount (m^3) of CCA treated timber products entering the Australian market annually[20]

CCA APPLICATION	AMOUNT (M^3)
Domestic fence palings	166,000
Domestic fence rails	68,000
Green off saw (GOS) case, plinth landscaping	5000
Sleepers	312,000
Outdoor structural framing	24,000
Plywood	720
Roundwood agricultural posts	190,000
Roundwood poles and piles	130,000
Total	**895,000**

WASTE GENERATION AND DISPOSAL

Waste disposal pathways

Current legal disposal pathways (Figure 2-1) for CCA treated timber are limited to either reuse, construction and waste demolition recycling, stockpiling or landfilling. Managed landfills minimise environmental risk from this waste through the use of liner/leachate management. Some authorities suggest that CCA is likely to remain within the waste stream until at least 2040[21], but given that the active service life is likely to be 30-40 years, posts purchased today will still be in circulation in 2060.

[16] Arxada Australia (2022) Australian timber market data; Ward, S. (2023) Personal communication, 30 October; Norton, J. (2023) Personal communication, 28 June

[17] University of the Sunshine Coast (2023) Timber Circularity Project preliminary data, October

[18] University of the Sunshine Coast (2023) Timber Circularity Project preliminary data, October

[19] Sas, A. (2024) Pers. comms., 22 February

[20] Arxada Australia (2022) Australian timber market data

[21] See: https://www.epa.nsw.gov.au/your-environment/household-building-and-renovation/treated-timber/-/media/EAA8EE5EDF6042FABA574533BB277E9B.ashx

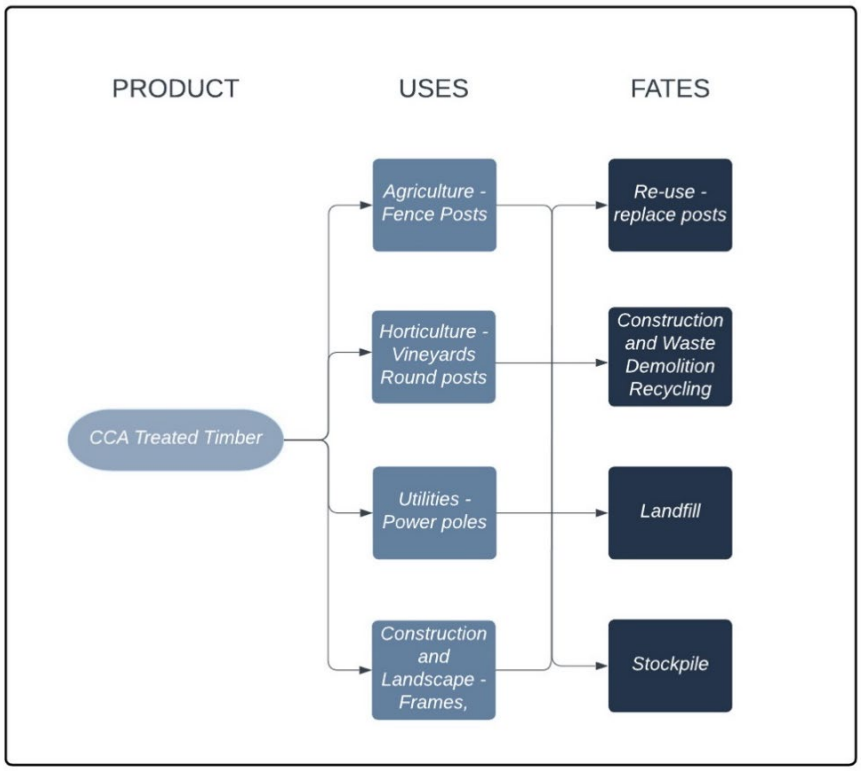

Figure 2-1: Current disposal pathways for CCA treated timber[22]

Recycling or repurposing options for CCA treated timber are currently limited. While CCA posts are sometimes given away or sold, there is uncertainty as to whether sawing the post to size as part of this process contravenes various state regulations which relate to the classification of waste treated timber as a controlled/priority waste[23]. There are environmental and health concerns with re-milling CCA treated timber given the toxicity risk of the sawdust, although in New Zealand a business has been successful in re-purposing a significant proportion of the vineyard CCA post stockpile for farm fencing[24]. Their process involves sawing the broken CCA post to a suitable size and does produce sawdust.

Small-scale research and development projects are underway to recover timber or biochar products by extracting the heavy metals from CCA treated timber or processing the timber without the extraction step. While the initial results are positive, none of this research has been commercially scaled to test its viability as a circular economy solution.

It is currently illegal in Australia to burn, chip or saw CCA treated timber given the potentially significant toxicity impacts of air and soil borne chromium and arsenic.

Waste generated

The Australian horticulture industry (which includes viticulture) produces an estimated 31,777 tonnes of treated timber on-farm waste per year[25], of which it is assumed the majority is CCA treated.

[22] Jackson Environment and Planning (2017) CCA Treated Timber EPR Discussion Paper
[23] University of the Sunshine Coast (2024) Timber Circularity Project policy and regulation report (in preparation at time of writing)
[24] See: https://www.repost.co.nz
[25] AgriFutures Australia (2022) Pre-farm gate waste management; Baseline waste data for the agriculture, fisheries and forestry sector, report prepared by RMCG

A study for the wine industry estimated that 1.7 – 4.2 million treated timber posts were removed from vineyards across Australia in 2022 of which 79% were CCA treated, the remainder being creosote[26]. The calculated range in post numbers reflects the variability in reported breakage rates.. Approximately 70 million CCA treated timber posts remain in the ground and will become a legacy waste issue in the future.

Table 2-2: Viticulture treated timber post removal and waste generation per year[27]

STATE	NUMBER OF CCA TREATED POSTS REMOVED IN 2022
South Australia	682,061
New South Wales	300,040
Victoria	230,857
Western Australia	96,727
Tasmania	20,693
Queensland	5,950
Total	**1,336,328**

DATA GAPS

The current gaps in data include the:

- Total amount (tonnes) of treated timber products by treatment type that enter the Australian market each year by use.
- Change over time of proportion of CCA treated products versus other treatments e.g. ASQ and LOSQ.
- Amount of annual CCA treated timber waste produced for the construction, utility and landscape industries by state.
- Amount of CCA treated timber waste by industry that is being stockpiled and how much is taken to landfill.
- Amount of copper, chromium and arsenic released into the environment from stockpiling, illegal burning or dumping, or landfill in Australia.

Many of these data gaps are expected to be addressed by the existing Timber Circularity Project within the National Centre for Timber Durability and Design Life, University of the Sunshine Coast.

2.3 ENVIRONMENTAL IMPACTS

CCA treated timber has potential environmental impacts during its entire lifecycle. Whilst government regulations and standards require anyone treating timber with CCA chemicals to hold chemical handling licenses and that treated timber waste must be disposed to landfill, there is little monitoring to ensure compliance with current disposal regulations[28]. The burning of treated timber, either through illegal burn off or bushfire, can release dioxins and furans into the air which is toxic to the environment.

[26] University of the Sunshine Coast (2023) Timber Circularity Project preliminary data, October

[27] University of the Sunshine Coast (2023) Timber Circularity Project preliminary data, October. Totals assume a 2% post breakage rate which is likely at the lower range of values, with 5% annual post breakage reported in some regions (3.3 million CCA posts per annum)

[28] Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review

The accidental burning of CCA treated timber through bushfire poses a significant risk in Australia, which will be exacerbated by climate change.

The bioaccumulation of arsenic into water and soil poses a potentially significant risk to the environment. It is highly toxic to both soil and aquatic organisms. A build up in animals can suppress immune systems, degenerate nervous systems and increase foetal mortality rates in marsupials. Copper is particularly toxic to fish, several marine invertebrates and mammals, while high chromium concentrations have been found to harm reproduction of exposed animals[29].

The amount of CCA chemicals released into the Australian environment from stockpiling, burning or from landfill facilities is unknown.

2.4 SOCIAL AND HUMAN HEALTH IMPACTS

Arsenic, copper and chromium can all be ingested through contaminated soil and water, or food grown in contaminated soil, sawdust from cut treated timber, smoke generated from burning CCA timber and from absorption through the skin whilst touching. While arsenic does occur naturally and small doses are safe to ingest, if the doses are high enough, arsenic is lethal to humans, especially children[30].

Arsenic toxicity is associated with hearing loss, nervous and neural system degeneration, suppression of the immune system and increases probability of the occurrence of cancer[31]. Exposure to arsenic may cause cancers and affect the respiratory, pulmonary, cardiovascular, gastrointestinal, haematological, hepatic, renal, neurological and immunological systems. Children are more susceptible as they are more likely to have frequent and intimate contact with CCA treated timber, particularly in relation to playground structures. Physiological differences also mean that children are more susceptible to the effects of exposure to arsenic.

Chronic human exposure to chromium results in irritation and rashes on skin, lung cancer, and kidney and liver damage. High concentrations of copper in humans can cause liver failure, severe neurological deficiencies, and even lead to death[32]. Hexavalent chromium in ash if CCA timber is burnt is considered a Class 1 carcinogen to humans.

The amount of chemicals from CCA treated timber leaching into soil, water or air directly impact human health and wellbeing is unknown.

2.5 ECONOMIC IMPACTS

The largest known economic impacts from end-of-life CCA treated timber disposal are the landfill fees and cost of transport. In many locations, landfill fees increase annually[33] and it is likely that these fees combined with the high cost of transport are acting as a disincentive to responsible disposal, encouraging the stockpiling of posts on private land.

This then potentially leads to a reduction in available land for productive purposes and an increased risk of soil and water contamination which could lead to longer term remediation costs or reduced productivity outcomes.

[29] Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review
[30] Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review
[31] Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review
[32] Morias et al. (2021) Environmental and Health Hazards of Chromated Copper Arsenate-Treated Wood: A Review
[33] For example, see: https://www.epa.sa.gov.au/business_and_industry/waste-levy

DATA GAPS

The current gaps in data include:

- The annual cost of landfill disposal of CCA treated timber for industry in major horticultural regions, by state.

This is expected to be addressed by the Timber Circularity Project within the National Centre for Timber Durability and Design Life, University of Sunshine Coast.

3 Proposed solutions

3.1 DESIRED OUTCOMES

The Treated Timber Product Stewardship Working Group currently supports the use of treated timber poles within horticulture given their functionality, durability and overall cost compared to alternative materials. However, it is the lack of end-of-life solutions which results in stockpiling, burying, burning or disposal into landfill and the potential leaching of heavy metals into soil, water and air that the stewardship program aims to address. In addition, there are alternative treatments to CCA that are readily available and may have less environmental and human health impacts. Currently, however these alternatives are significantly more expensive. Refer to Section 1.2 for a description of desired goals and outcomes.

3.2 POTENTIAL OPTIONS

Based on knowledge and research to date, the following preliminary pathways have been identified within the waste hierarchy to achieve the desired stewardship outcomes (Table 3-1). These options should be further analysed and developed as part of the stewardship scheme design process.

The stewardship scheme will focus on the reuse, recycling, recovery and treatment of treated timber in Australia rather than avoidance or reduction, with an initial focus on CCA. While avoidance and reduction are important strategies to minimise waste, the immediate priority is the management of legacy stockpiles of CCA treated timber and of the more than one million CCA posts from Australian vineyards which enter the waste stream each year.

Table 3-1: Preliminary pathway options for treated timber against the waste hierarchy

WASTE MANAGEMENT HIERARCHY	PATHWAY FOR CCA TREATED TIMBER	CURRENTLY AVAILABLE IN AUST.
Avoid	Consumer education on the hazards of using CCA.	Yes
	Explore use of alternative materials: steel, untreated timber encased in recycled plastic, wood-plastic composite., hardwoods. Consider alternatives in terms of a life cycle assessment comparison with CCA treated timber.	Yes
	Increase the availability and improve the price competitiveness of viable treated timber substitutes e.g. ASQ and LOSQ.	Yes
	Phase out of production and sale of CCA treated timber.	No
Reduce	Consumer education on the hazards of using CCA.	Yes
	Explore use of alternative materials: steel, untreated timber encased in recycled plastic, wood-plastic composite, hardwoods. Consider alternatives in terms of a life cycle assessment comparison with CCA treated timber.	Yes
	Increase the availability and improve the price competitiveness of viable treated timber substitutes e.g., ASQ and LOSQ.	Yes, substitutes are available but are considerably more expensive.

WASTE MANAGEMENT HIERARCHY	PATHWAY FOR CCA TREATED TIMBER	CURRENTLY AVAILABLE IN AUST.
	Phase out of production and sale of CCA treated timber.	No
Reuse	Use of re-sawn round and strainer posts within agricultural and landscape treatments such as fenceposts, bollards, guardrail posts, and walkway edging.	Yes, but only at localised scale. Larger scale pilot being developed.
	Encapsulated in concrete.	No
	Glue laminated timber (Glulam) or particle board used in the construction industry.	No
Recycle	Mulch	Not permitted
	Recycled timber products	No
Recover	Pyrolysis of chipped timber producing 'dirty' biochar for industrial use, and other value-add products and/or energy recovery.	Research and small-scale pilots only and subject to analysis of heavy metals etc. to ensure safety.
Treat	Pyrolysis to produce biochar coupled with plastic encapsulation.	Research and small-scale pilots only subject to analysis of heavy metals etc. to ensure safety.
	Pyrolysis of timber pulp which has been stripped of CCA, producing biochar for agricultural or industrial use, and other value-add products and or energy recovery. Extraction and concentration of copper, chromium and arsenic using various processes (e.g. acid or fungi/bacteria digestion) to remove metals (60-100% of heavy metals can be extracted).	Research and small-scale pilots only.
Dispose	Landfill	Yes
	Stockpile	Yes
	Burn or bury	Not permitted
	Dump	Not permitted

There is currently no at-scale proven reuse, recycling and recovery solutions for end-of-life CCA treated timber in Australia or overseas, apart from the commercial reuse operation in New Zealand mentioned in Section 2.2. Some pilot projects and research are underway or currently in the design phase to test some of these pathways, including their functionality, likely costs and outcomes[34].

This includes:

- Research to test recovery processing options such as heavy metal extraction and pyrolysis to produce biochar.

[34] For example: King, S. & Barrs, Y. (2023) A circular ecosystem for wood waste in NSW, presentation to Waste Expo Australia, Melbourne, October, GHD & Illawarra Shoalhaven Joint Organisation

- Small-scale pilot projects testing the feasibility of stockpiling and reuse of treated timbers are currently being designed for implementation and evaluation within a two-year timeframe by the Timber Circularity Project.

The feasibility and practicality of recycling and recovery pathway options requires immediate assessment to determine which solutions will improve the environmental and human health outcomes of CCA treated timber reaching their end-of-life now and into the future. This would include assessing the environmental, social and economic benefits, costs, risks, required financial investment (e.g. advance disposal fee) and regulatory implications. Feasibility will be examined in parallel with current work being undertaken by the Timber Circularity Project and government regulatory reviews.

An advance disposal fee (ADF) by way of example, could be charged at the point of CCA treated timber sale which could be used to fund public education on the management of existing CCA treated timber structures, end-of-life management of CCA treated timber, and education to encourage use of sustainable alternatives to CCA treated timber. This approach has two principal benefits. Firstly, it would make alternative treated timber products more cost competitive. Secondly, it will provide government with a clear pathway to manage the human health and environmental impacts of the current stock of CCA treated timber in service and at end-of-life[35]. Other options may include a levy on treated timber like the battery stewardship scheme. The *Recycling and Waste Reduction Act 2020* provides that voluntary product stewardship arrangements in relation to products that are designed to further the objects of this Act may be accredited. Accreditation allows industry led product stewardship arrangements to demonstrate to businesses and consumers that the arrangement has received approval by the Australian Government. This provides confidence that the arrangement's environmental and health outcomes have been verified and will contribute to Australia's recycling and waste reduction objectives.

The phase-out of CCA treated timber for certain or all applications may also be part of a possible longer-term solution that might be explored by government regulators, however, is not the focus of the proposed stewardship scheme.

3.3 ANTICIPATED BENEFITS

It is anticipated that a combination of the above options will deliver the following stewardship benefits.

ENVIRONMENTAL

- Reduction in treated timber waste being disposed in landfill, stockpiled or illegally burned, buried or dumped.
- Reduction in heavy metals, specifically arsenic, chromium and copper leaching into soils, water and air.
- Post treatment, production of soil ameliorants for agriculture and horticulture e.g. biochar, mulch.
- Sequestration of carbon if biochar is produced.

SOCIAL

- Reduction in harmful chemicals coming into contact with people, animals and entering the food chain.
- Greater knowledge, awareness and social practice change regarding circular economy solutions for end-of-life CCA treated timber.
- Increased user access to responsible and cost-effective disposal pathways.

ECONOMIC

- Job creation through direct employment in new reuse and recycling businesses.
- Creation of new end markets for circular resources such as reuse of treated timber in other products, production of biochar and mulch.

[35] Jackson Environment and Planning (2017) CCA Treated Timber EPR Discussion Paper

4 Our approach

4.1 WHAT NEEDS TO BE DONE

Activities to inform the design of a stewardship scheme for treated timber have commenced to better understand the problem and scope (Stage 1), as well as solutions and outcomes (Stage 2). However, there is still much to be done to develop the financing and governance arrangements (Stage 3), assess risks and finalise operations (Stage 4) of the scheme.

The treated timber stewardship scheme design stages and tasks are outlined in Table 4-1 below, which also outlines how the identified gaps will be filled and current work leveraged.

Table 4-1: Treated timber stewardship scheme design stages and tasks[36]

TASK	DESCRIPTION	STATUS AND FURTHER WORK
Stage 1: Problem and product scope		
Define and quantify the problem of CCA treated timber waste	The environmental and human health impacts of CCA treated timber will be verified, with a particular focus on end-of-life management. CCA treated timber flows and fates will be audited and mapped by origin, type, usage and estimated quantity. This will help to identify and prioritise treated timber products to be included in the scheme and form the basis for a material flow analysis, including classification and regulatory pathways in each jurisdiction.	**Partially completed** Verify impacts, fill data gaps and confirm scope of products in collaboration with the industry stakeholders, Timber Circularity Project and other agencies (e.g. EPA SA). Appoint Executive Officer for the Treated Timber Product Stewardship Working Group.
Confirm scope of products to be included in the scheme	The initial focus of the scheme will be roundwood agricultural posts in the viticulture and horticulture sector, based on the estimated larger volume and market share and early industry willingness to participate. Other CCA treated timber products include those from the utility, construction, landscaping and domestic sectors.	
Stage 2: Solutions and outcomes		
Develop and pilot solutions for CCA treated timber waste	The feasibility of end-of-life solutions for treated timber against the waste management hierarchy by industry segment will be analysed. This includes the focus areas of reuse, recycling, recovery and treatment of treated timber in Australia, rather than avoidance or reduction. The existing classification standards of material for collection, collection operations, processing and production relevant to the different type of treated timber products will be assessed. The regulatory barriers to reuse and recycling will also be explored and understood, particularly for pre-processing and hazardous saw dust. The available and potentially viable technologies for on-farm retrieval, collection, processing and production of recycled treated timber products will be analysed. Pilots may be undertaken to test collection, transport and reuse/recycling to inform the detailed design of the scheme (e.g. collection with councils in South Australia, recycling with processors in Victoria). It is important these pilots consider planning and design, implementation (including regulatory) and evaluation to capture the lessons and insights[37]. The preceding tasks will inform the analysis of the costs, benefits and viability of collection and recovery of treated timber products for the current base case and proposed future scenarios. This will include modelling different collection and recovery rates, options, geographic coverage, transport costs, and funding requirements. The solutions and options analysis will be integral to inform the business case for scheme viability and finance.	**Partially completed** While initial options have been identified, the feasibility analysis is still to be completed. Build on research and pilots being undertaken by Timber Circularity Project (i.e. options analysis, material condition, regulatory analysis, transport cost models, and pilot outcomes).

[36] Informed by: Product Stewardship Centre of Excellence (2023) Eight elements to designing Product Stewardship Initiatives, University of Technology Sydney

[37] Product Stewardship Centre of Excellence (2023) Checklist for Pilot Projects & Trials; Practice Note, University of Technology Sydney

TASK	DESCRIPTION	STATUS AND FURTHER WORK
Agree and describe outcomes	The environmental and human health outcomes will be informed by the viable solutions in the design, manufacture, use and end-of-life management of treated timber products. This will focus on the benefits of improved end-of-life management of treated timber through reduced on-farm stockpiling, burying and burning, reduced landfill rates, increased collection and recovery rates, as well as viable end markets for recovered products.	**Pending** Need to document the outcomes and benefits of improved end-of-life management of treated timber. Build on research and pilots being undertaken by Timber Circularity Project options analysis.
Stage 3: Finance and governance		
Determine scheme funding	There are several options to fund the scheme, including: ▪ Not for profit. ▪ Cost recovery based on market share. ▪ Equitable and proportionate sharing of costs across the supply chain. ▪ Who contributes and how much, sliding scale, market share. ▪ Membership fee, levy, others. ▪ How is contribution recovered – point of import, sale, or other mechanism. ▪ Business / financial model. In developing the solutions for treated timber, an economic model will be developed, and financial analysis undertaken to determine the operating costs of the scheme. The economic model will be further refined in consultation with key stakeholders to determine the: ▪ Scheme costs and budget ▪ Funding contributions and revenue ▪ Scheme cash flow.	**Not started** Data from stages 1 and 2 will be needed to undertake the economic modelling and financial analysis.
Outline scheme governance and administration	Governance structures ensure the right people are the ones making the important and right decisions. Governance encompasses the system by which an organisation is controlled and operates, and the mechanisms by which it, and its people, are held to account. Ethics, risk management, compliance and administration are all elements of governance[38]. Product stewardship schemes, like any organisation no matter how it is structured, require good governance where there is clear definition of roles and responsibilities and public reporting to give its members and the community confidence the objectives of the scheme are being met. Key to an effective stewardship scheme is to ensure the scheme is sufficiently, efficiently and transparently funded and governed. There are several potential governance arrangements that could be used to implement a stewardship scheme including: ▪ Implemented individually by businesses. ▪ Establish a new Product Stewardship Organisation (e.g. not for profit company limited by guarantee) with the specific purpose to collect and manage funds and deliver scheme objectives on behalf of the industry. ▪ Managed by an existing Industry Association or other entity on behalf of industry. ▪ Regulated by government.	**Not started** Data and consultation from Stages 1 and 2 will be needed to determine best governance structure and administration.

[38] See: https://www.governanceinstitute.com.au/resources/what-is-governance/

TASK	DESCRIPTION	STATUS AND FURTHER WORK
Stage 4: Risk management and operations		
Understand risks	The risks to scheme will be identified, analysed and appropriate mitigations proposed. The risks may include, but are not limited to: ▪ Companies not contributing to fund scheme, or 'free riders'[39]. ▪ Non-participating farmers and agri-businesses. ▪ Unsafe or irresponsible collection, reuse and recycling. ▪ Products exported to developing countries. Some of these risks will be offset through increasing legislative drivers of federal and state environment protection laws, and links with existing industry best practice programs such as Sustainable Winegrowing Australia[40] and Hort360[41] to manage agricultural waste and recover resources more responsibly.	**Not started** Data and stakeholder consultation from previous stages will be needed to understand risks and measures to mitigate.
Document operational principles and procedures	The operational principles and procedures will be documented and will include, but are not limited to: ▪ Ensure safety and environmental responsibility. ▪ Outline service levels – accessible to all users, national coverage. ▪ Define roles and responsibilities. ▪ Outline design, reuse, repair, collection and recycling standards, protocols, and codes of practices. ▪ Outline compliance and reporting requirements. The scheme operation component of the implementation plan will cover: ▪ Collection methods, retrieval standards and aggregation of commercial quantities. ▪ Pre-processing infrastructure, location, new technology and capacity. ▪ Transport and logistics, costs and optimisations. ▪ Re-processing infrastructure, location, new technology and capacity. ▪ Communication and education, including awareness of the scheme and knowledge of the potential benefits to business relative to the 'costs' (e.g. time, convenience) are sufficient to prompt action. ▪ Research and development, to strengthen and develop new end markets. ▪ Analysis of alternative treated timber processes and barriers to uptake.	**Not started** Data and stakeholder consultation from previous stages will be needed to complete.
Stage 5: Establish scheme and commence implementation		
Establish scheme	Develop establishment and delivery plan. Establish new scheme entity (PSO). Undertake PSO/scheme planning, including further stakeholder engagement and communication. Launch and operate scheme.	**Not started** Data and stakeholder consultation from previous stages will be needed to complete.

[39] Product Stewardship Centre of Excellence (2021) Overcoming Free-Riders: Strategies to maximise industry participation, White Paper, September

[40] See: https://sustainablewinegrowing.com.au

[41] See: https://www.hort360.com.au

4.2 STAKEHOLDER ANALYSIS AND SUPPLY CHAIN ENGAGEMENT

Essential to successful stewardship scheme design, operation and implementation is effective stakeholder engagement across the supply chain. High levels of industry, business and government participation, and investment, is essential for realising the environmental, social and economic benefits of product stewardship.

The stakeholders in a treated timber stewardship scheme include manufacturers, retailers, industry groups, research and development, government, and users. Each of the stakeholder groups and their associated drivers for participating in a scheme are analysed in Table 4-2 below.

The Treated Timber Product Stewardship Working Group will coordinate and undertake stakeholder engagement in the scheme design phase (Stages 1 to 4), prior to the Product Stewardship Organisation being established and the scheme commencing implementation. Limited stakeholder engagement has been undertaken to date.

The Treated Timber Product Stewardship Working Group will also actively engage with the Timber Circularity Project being undertaken by the National Centre for Timber Durability and Design Life, University of the Sunshine Coast, for Forest and Wood Products Australia. The purpose of the project is to identify environmentally and economically sound opportunities for reuse and recycling treated timber and engineered wood products (EWPs), by undertaking the following activities:

- Establish current volumes, forecast future volumes and determine geographic distribution of the different treated timber/EWPs entering the waste stream.
- Assess condition of material in terms of residual chemicals and potential for reuse/repurposing.
- Identify local, state and federal regulatory hurdles that affect transport and reuse options.
- Develop models to estimate transport costs for specific products across the country.
- Hold a Reuse Strategies Scoping and Assessment Summit with invited international experts to identify the most appropriate reuse/recycling strategies based on global experiences but framed in an Australian context.
- Develop a geospatial tool that uses material characteristics, volumes, and location to identify the most attractive reuse options for a given treated timber/EWP in a specific geographic area.
- Develop a small-scale reuse/recycling program with one treated timber/EWP product to assess feasibility of the approach and explore the logistical hurdles.[42]

The Timber Circularity Project will provide useful data to inform the stewardship scheme design and operation. Strong collaboration and links with the project have already been established by the Treated Timber Product Stewardship Working Group.

[42] See: https://www.usc.edu.au/research/forest-research-institute/national-centre-for-timber-durability-and-design-life/timber-circularity-project/project-details

Table 4-2: Stakeholder analysis and engagement

GROUP	ORGANISATIONS	DRIVERS
Treated timber manufacturers	▪ Koppers Performance Chemicals ▪ Arxada Australia	▪ Opportunity to meet ESG requirements for extended producer responsibility for end-of-life treated timber.
Treated timber retailers	▪ Rural supply stores – various international, national and regional agencies, for example Elders, Nutrien, E.E. Muir & Sons.	▪ Opportunity to supply a sustainable, cost-effective treated timber products to agricultural customers. ▪ Contribute to customer purchasing behaviour of sustainable alternatives to treated timber products.
Treated timber industry groups	▪ Forest and Wood Products Australia. ▪ Timber Preservers Association of Australia. ▪ **Treated Timber Product Stewardship Working Group.**	▪ Improve the broader sustainability of their industry. ▪ Contribute to industry social licence to operate based on consumer demand for sustainable product.
Agriculture industry groups	▪ National Farmers Federation. ▪ State – relevant state organisations such as Victorian Farmers Federation, NSW Farmers, NSW Wine Industry Association. ▪ Commodity – relevant commodity organisation, such as Australian Grape and Wine. ▪ Regional groups – such as Barossa Grape & Wine Association and Murray Valley Winegrowers Incorporated.	▪ Improve the broader sustainability of their respective industries. ▪ Contribute to industry social licence to operate based on consumer demand for sustainably produced product.
Waste management peak industry groups	Represent collectors, processors and manufacturers: ▪ Australian Council of Recycling (ACOR). ▪ National Waste and Recycling Industry Council (NWRIC). ▪ Waste Management and Resource Recovery Association (WMRR). ▪ Chemistry Australia.	▪ Develop new and expand existing product stewardship schemes that cover priority waste streams. ▪ Increased type and extent of feasible, industry-led stewardship schemes that have sustainable funding models and longevity.
Research and development	▪ **National Centre for Timber Durability and Design Life – Timber Circularity Project** (University of the Sunshine Coast consortium). ▪ Wine Australia. ▪ Hort Innovation.	▪ Links to new and emerging timber processing technology or alternative products. ▪ Contribute to industry sustainability frameworks, data collection and reporting.
Government	▪ Federal – Department of Climate Change, Energy, the Environment and Water. ▪ State and territories – relevant Environment Protection Authorities and departments of environment and agriculture. ▪ Local government including regional groups. ▪ Other government land managers.	▪ Develop new and expand existing product stewardship schemes that cover priority waste streams. ▪ Promote alignment of industry programs with current national waste policy, action plan and circular economy principles. ▪ Ensure agriculture industry disposes of waste in accordance with state regulatory requirements and best practice standards.
Treated timber users	▪ Farmers – various individual businesses. ▪ Energy companies. ▪ Other land managers.	▪ Dispose of waste more sustainably and cost-effectively. ▪ Meet consumer demand for more sustainably produced product.

4.3 WHAT THE WORKING GROUP WILL DELIVER

The Treated Timber Product Stewardship Working Group and proposed Executive Officer will oversee the five stages to design, pilot and establish the scheme including all elements of stakeholder engagement. The outputs will include:

- **Scheme design (Stages 1 to 4)**
  - Outline the final scheme design including governance, financial investment and risk management.
  - Incorporate the best practice characteristics of clearly defined objectives, good governance, use of financial incentives, effective marketing[43].
  - Develop implementation plan to establish the scheme.
- **Scheme establishment (Stage 5)**
  i. Deliver the implementation plan to establish the stewardship scheme.

This work will be informed by the proposed outputs from the Timber Circularity Project:

- What treated timber materials are being disposed of across the country by location.
- The condition of the treated timber materials in terms of reuse/recycling.
- The most appropriate reuse/recycling options by product and location.
- Whether a 'take-back' program is feasible with at least one treated wood product.
- National Guidelines for best practice storage, handling and management of end-of-life CCA treated timber posts[44].

The combined value of these outputs will play a critical role in raising awareness and understanding among stakeholders in a detailed and solution-oriented manner. The implementation and establishment plans will serve to guide and inform more detailed aspects of the scheme design process. They also demonstrate a professional approach being adopted by the Treated Timber Product Stewardship Working Group.

[43] Informed by: Product Stewardship Centre of Excellence (2023) Eight elements to designing Product Stewardship Initiatives, University of Technology Sydney

[44] See: https://www.usc.edu.au/research/forest-research-institute/national-centre-for-timber-durability-and-design-life/timber-circularity-project/project-details

5 Next steps

5.1 OPPORTUNITY TO BE INVOLVED

The Treated Timber Product Stewardship Working Group will facilitate the design and implementation of a national stewardship scheme, engage key stakeholders, and build industry understanding and ownership.

The Working Group includes representatives from across the industry sector with expertise in design, manufacturing and use and disposal of treated timbers.

Key to successful stewardship scheme design, operation and implementation is effective stakeholder engagement across the supply chain. High levels of industry, business and government participation, and investment, is essential for realising the environmental, social and economic benefits of product stewardship.

The Treated Timber Product Stewardship Working Group will establish a Stakeholder Reference Group to engage with stakeholders across the supply chain and government, including representatives from state government agencies (EPA, primary industries), local government, treated timber industry associations, manufacturers and users in the agriculture, horticulture and energy sectors, recycling and waste management organisations, as well as other relevant industry associations.

5.2 KEY TASKS, TIMELINES AND BUDGET

The estimated cost of designing the proposed Treated Timber Stewardship Scheme is $1 million, with planned project commencement in May 2024. The approx. two-year timeline and budget for Stages 1-4 have been developed based on the scheme design stages and tasks outlined in Section 4.1. This investment would take the scheme to the establishment and implementation phase (Stage 5), the cost of which is expected to be from industry contributions.

The requested $1 million in funding would be used by the Treated Timber Product Stewardship Working Group to undertake:

- **Stakeholder engagement** with the agriculture industry, manufacturers and supply chain.
- **Communications** with industry on the problem and proposed solution to create buy-in and ownership over the stewardship scheme.
- **Project management** through the appointment of an Executive Officer to coordinate the Treated Timber Product Stewardship Working Group and stewardship scheme design and implementation activities.

Integral to the success of the proposed stewardship scheme is collaboration with the existing Timber Circularity Project, especially to evaluate the feasibility of solutions for end-of-life treated timber (Stage 2). The Timber Circularity Project will also assist in defining the scale of the problem through provision of data, and informing the product scope (Stage 1).

Table 5-1: Key tasks and budget for the Treated Timber Product Stewardship Working Group

TASK	WORKING GROUP ACTIVITY	FUNDING REQUEST
Stage 1: Problem and product scope		
Define and quantify the problem of CC treated timber waste	Appoint Executive Officer for the Treated Timber Product Stewardship Working Group and develop project and stakeholder engagement plans. Fill data gaps in material flow including identifying current end-of-life options, classifications and regulatory pathways within each state.	$100,000/year for 2 years ($200,000)
Confirm scope of products to be included in the scheme	Engage with industry stakeholders to confirm scale of problem, scope and priority of treated timber products. Engage with governments and state EPAs throughout Stages 1-5.	$100,000
Stage 2: Solutions and outcomes		
Develop and pilot solutions for CCA treated timber waste	Analyse feasibility of end-of-life solutions for CCA treated timber against the waste management hierarchy, by industry segment. Undertake pilots to test collection, transport and reuse/recycling to inform the detailed design of the scheme.	$200,000
Agree and describe outcomes	Agree and document desired environmental, economic and social outcomes, as well as the benefits of improved end-of-life management of treated timber.	$100,000
Stage 3: Finance and governance		
Determine scheme funding	Undertake economic modelling and financial analysis to determine the operating costs of the scheme, include in implementation plan. Conduct cost benefit analysis for the environmental, social and economic impact of the scheme.	$100,000
Outline scheme governance and administration	Investigate and determine scheme governance structures and administrative procedures, include in implementation plan.	$100,000
Stage 4: Risk management and operations		
Understand risks	Identify, analyse and mitigate scheme risks, with consideration of legislative drivers, include in implementation plan.	$50,000
Document operational principles and procedures	Develop operational principles and procedures, include in implementation plan.	$150,000
Total	**Government funding (over 2 years)**	**$1,000,000**
Stage 5: Establish scheme and commence implementation (industry funded)		
Establish scheme	Develop establishment and delivery plan. Establish new scheme entity (PSO). Undertake PSO/scheme planning, including further stakeholder engagement and communication. Launch and operate scheme.	$750,000
Total	**Industry funding (per annum)**	**$750,000**

Table 5-2: Timelines for scheme design and implementation

STAGE	May-Jul 2024	Aug-Oct 2024	Nov 24 - Jan 25	Feb -Apr 2025	May-Jul 2025	Aug-Oct 2025	Nov 25 - Jan 26	Feb-Apr 2026
Stage 1: Problem and product scope								
Stage 2: Solutions and outcomes								
Stage 3: Finance and governance								
Stage 4: Risk management and operations								
Stage 5: Establish scheme and commence implementation								

5.3 FURTHER INFORMATION AND CONTACT

For further information please contact:

Stephen Telford

Chair, Treated Timber Product Stewardship Working Group

0419 853 054

stelford@roundwoodsolutions.com.au

Alex Sas

Member, Treated Timber Product Stewardship Working Group

0419 810 173

alex.sas@wineaustralia.com

This report has been prepared by:

RM Consulting Group Pty Ltd trading as RMCG

Level 1 East, 1100-1102 Toorak Road, Camberwell Victoria 3124

(03) 9882 2670 — rmcg.com.au — ABN 73 613 135 247

Offices in Victoria, Tasmania and NSW

Key RMCG contact

Carl Larsen

0419 622 393 — carll@rmcg.com.au

Document review and authorisation

Project Number: #2184

Doc Version	Final/Draft	Date	Author	PD Review	BST Review	Release approved by	Issued to
1.0	Draft	09/10/2023	C. Larsen	-	-	-	M. Caffin
2.0	Draft	30/10/2023	M. Caffin C. Larsen	C. Larsen	-	C. Larsen	R. Read (PSCoE) J. Gertsakis (PSCoE)
3.0	Draft	02/11/2023	M. Caffin C. Larsen	C. Larsen R. Read (PSCoE) J. Gertsakis (PSCoE)	B. Gravenor	C. Larsen	Treated Timber Product Stewardship Working Group
4.0	Final	28/11/2023	M. Caffin C. Larsen	C. Larsen R. Read (PSCoE) J. Gertsakis (PSCoE)	L. McKenzie	C. Larsen	Treated Timber Product Stewardship Working Group
5.0	Revised final	05/03/2024	M. Caffin C. Larsen V. Levitzke (CEA) A. Sas (WA)	C. Larsen R. Read (PSCoE) J. Gertsakis (PSCoE)	L. McKenzie	C. Larsen	Treated Timber Product Stewardship Working Group