

12 May 2022

Ms Jacqueline Moore
Acting Chief Executive Officer
NSW Environmental Protection Authority (EPA)
Locked Bag 5022
PARRAMATTA NSW 2124

Email: resource.recovery@epa.nsw.gov.au

Dear Jacqueline,

SUBJECT: RESOURCE RECOVERY FRAMEWORK

Cement Concrete & Aggregates Australia (CCAA) welcomes the opportunity to provide a submission to assist the NSW Environmental Protection Authority (EPA) to develop its Resource recovery framework and subsequent policies that support community protection, environmental health and the circular economy.

CCAA is the peak industry body for the heavy construction materials industry in Australia including the cement, pre-mixed concrete and extractive industries. Our members operate cement manufacturing and distribution facilities, concrete batching plants, hard rock quarries and sand and gravel extraction operations throughout New South Wales.

CCAA members nationally account for 90% of total industry output, with the industry generating \$15 billion per annum in revenue, employing 30,000 Australians directly and supporting the employment of a further 80,000 people. CCAA members produce and supply the heavy construction materials that are used to construct New South Wales' infrastructure. Providing both the raw material and finished product, heavy construction materials contribute to the construction of our roads, railways, bridges, ports, airports, hospitals and schools.

Our members service local, regional and national building, construction and infrastructure markets. The reliable and cost-effective supply to these markets is fundamental to sustainable growth and it is CCAA's aim to promote policies that recognise the importance of these materials to Australia's sustainable future.

The industries represented by CCAA have a significant stake in relation to resource recovery and are committed to working closely with the EPA to improve outcomes in the circular economy and to play a vital role to delivering new strategies and reforms.

About the heavy construction materials industry – resource recovery

The Australian cement and concrete sector have a long history of reducing its CO2 emissions having delivered a 25 per cent reduction since 2000. The sector understands the challenge of decarbonising by 2050, which will require significant regulatory, technological, structural and behavioural changes across all segments of the cement and concrete value chain. It will also require cement and concrete customers, developers, designers, building material procurers, architects, standards authorities, government and non-government agencies, and concrete and cement manufacturers to work together closer than ever before.

The heavy construction material industry is a key link in the circular economy. Circular economy and industrial ecology principals have been applied by the cement, concrete and aggregate industry for decades.

The cement, concrete and aggregate industries are not significant waste generators and utilises the by-products of other industries and various other secondary materials with the potential to be a net consumer of waste.

Like all products, concrete has environmental impacts arising from the acquisition of raw materials, processing, transport and recycling at the end of its life. However, these are significantly outweighed by the environmental, social and economic benefits that concrete delivers, such as:

- a high quality and affordable product that delivers high-quality low-cost structures;
- buildings which are long lasting, have very low maintenance requirements and can be life extended;
- being 100 per cent recyclable, and at the end of its service life, it can be reprocessed and re-used in roads and other capital works;
- low environmental impacts which reduce the overall environmental impact of a structure;
- concrete buildings provide improved indoor air quality as they do not require the use of finishes such as carpets on floors or paints/sealants on walls;
- thermal mass which increases the energy efficiency of buildings;
- not giving off harmful fumes or gases; and
- being non-combustible and excellent fire resistance.

Key Facts about our sector

- 5 Integrated cement plants in Australia produce clinker and cement as a continuous process.
- 60% of the cement manufactured in Australia is produced in integrated manufacturing plants.
- 40% of cement involves the use of clinker which is imported and manufactured into cement at grinding facilities located around Australia's coastline.
- 29 million m³ of ready-mixed concrete produced annually across 1,500 batching plants.
- 40% of all concrete is used for infrastructure projects.
- 30% of all concrete is used for commercial and non-residential buildings.

- 30% of all concrete is used for housing.
- 82% of concrete at its end of life is recycled and converted into other products.
- 80,000 people are indirectly employed in the whole cement, concrete, and aggregate sector, compared to 30,000 who are directly employed.
- A\$15 billion revenue is generated.

How we support the Resource Recovery Framework

Our sector supports the resource recovery framework utilising the by-products of other industries and various other secondary materials and waste products including:

- **Alternative Fuels:** Alternative fuels are sourced from the by-products of other manufacturing processes, or from end-of-life products with Australian cement manufacturing plants using an average of 15% alternative refuse derived fuels in clinker manufacture; including the use of waste tyres, oils, wood waste, as well as spent cell liners from aluminium production.
- **Supplementary Cementitious Materials (SCMs):** A significant proportion of concrete produced today contains SCMs which allow for the reduction of Portland cement in concrete, with the three main types used in Australia being blast-furnace slag (slag), fly ash and amorphous silica. CCAA is also partnering with TfNSW through the Smartcrete CRC on a project to evaluate the greater use of supplementary cementitious materials (SCMs) in concrete to reduce embodied carbon.
- **Manufactured Sand:** Manufactured sand is a purpose-made crushed fine aggregate, which is made from material that was previously considered a quarry waste. Once processed, the material can reduce the amount of natural sand required, while still meeting the highest quality concrete specifications.
- **Recycled Aggregates:** Recycled concrete aggregates are used in fit for purpose end uses such as road base and fill, low strength concretes, and, to a limited extent, some structural-grade concrete. Positive benefits include the amount of material going to land fill is reduced, though consideration is given to the cost of recovery and processing; additional quality control; as well as design and construction adjustments.
- **Water Management:** Water storage reservoirs at many quarries allow water to be reused for dust washing and suppression. Similarly, rainwater is harvested from water tanks at many of our cement facilities and concrete batching plants and then redistributed for use in other parts of the operations.
- **Concrete By-Products:** Quarries utilise returned concrete waste for recycled quarry products, thus preserving primary resources.

What we deliver as a part of the Resource Recovery Framework

- **Lower Carbon Concrete:** Introduced lower carbon products which allow less cement to be used in the concrete manufacturing process.
- **Recycled Material Usage:** Growing the range of recycled materials for use in products such as crushed glass and recycling operations that focus on products from construction and excavation waste materials.
- **Environmental Product Declarations:** Environmental Product Declarations (EPDs) are independently verified documents that provide data and environmental information about the life-cycle environmental impact of a product.
- **Improved Design Processes:** The Design for Manufacturing and Assembly (DfMA) process reduces waste through factory-controlled quality processes for “precast” concrete products. With the Design for Disassembly (DfD), concrete structures can be disassembled, reused and repurposed.
- **Better Supply Chain Integration:** To improve efficiencies in the transportation and emissions of the supply of construction materials across the building and supply chain.
- **Energy Offsets:** Companies are offsetting emissions through the purchase of low or zero carbon generation &/or installation of solar panels.
- **Waste Innovation:** Developing the use of new products that were previously considered waste. For example, bottom ash from Waste to Energy plants as a new aggregate and Alumino silicate from lithium production for use as a supplementary cementitious material.

Circular Economy Priorities

We maintain six priorities to improve our sector’s role in the circular economy.

1. MAXIMISE USE OF WASTE MATERIALS

- Optimise the use of waste materials as a replacement for fossil fuels

2. TRANSITION TO RENEWABLE ENERGY SOURCES

- Switch to innovative energy sources such as hydrogen

3. DEVELOP LOWER CARBON CEMENTS & CONCRETES

- Work with stakeholders to develop product and building standards and specifications to promote lower carbon cements and concretes

4. EMBRACE NEW TECHNOLOGIES & INNOVATIONS

- Awareness and promotion of new types of aggregates and concrete

5. ADVOCATE FOR SUPPORTIVE GOVERNMENT LEGISLATION & POLICY

- Work collaboratively with infrastructure and specification bodies to support the adoption of sustainable construction materials.

6. UNDERSTAND THE WHOLE OF LIFE BENEFITS OF CONCRETE

- It is vital to ensure a 'just transition,' which maintains the competitiveness of Australian manufacturing and jobs, and which is fair to consumers and society

In order to improve and build upon our sector's role within the resource recovery framework, CCAA makes the following comments:

Sustainable Procurement

CCAA has recently submitted comments upon the Transport for NSW (TfNSW) discussion paper on *Sustainable Procurement in Infrastructure*.

Our submission to TfNSW was supportive of the embedding of a new sustainability focus within infrastructure procurement that sought to drive industry standards. This new focus included the introduction of **baseline sustainability requirements** that would seek to direct industry with targets or practices to assist with the uptake of low carbon concrete products. To achieve net zero carbon emissions by 2050, we believe that the setting of baseline sustainability requirements will provide a clear market signal to assist industry to drive more sustainable outcomes over the long term.

We also argue that carbon emissions need to be assessed over the entire project lifetime, in a similar manner to how TfNSW assess **Whole-of-life cost**, or life cycle costing. The inclusion of this measure helps to incentivise and guide industry to adequately assess and plan projects that lead to much more sustainable outcomes over the long term.

CCAA, in its submission to TfNSW, noted that the creation of a **Recycled Material Specification Register** would be a positive step that would lead to projects being created with a much higher content of recycled materials. The inclusion of a similar register at the EPA as a sustainability principle or criteria with regards to a range of future projects would be of an enormous benefit to manage environmental and human health risks.

A key aspect of the sustainable procurement process which should also be adopted across a whole of government approach is the development of **Performance Based Specifications**. Specifications based on performance, rather than strict prescription encourages enhanced market driven outcomes, provide more consistency for industry and help to deliver infrastructure that is sustainable and fit for purpose.

Further, we argue that **engagement with suppliers** about any new specification requirements is a key part of the strategy to achieve greater outcomes in sustainable procurement. Often, regulator or government department level engagement with suppliers is limited and often, many find new processes confusing or too much of a burden financially to develop new methodologies that would

meet revised targets. We therefore ask that communication be broadened to ensure that resource recovery and circular economy outcomes are well known and understood by suppliers as part of the overall procurement process.

The role of EPD's

Environmental Product Declarations (EPDs) are independently verified documents that provide data and environmental information about the life-cycle environmental impact of a product. They play a vital third-party role to help with the verification of environmental performance of materials in a standardised way.

EPD's can also be used to benchmark the sustainability of products and allow identification of further improvements to the sustainability of products. Many pre-mix concrete manufacturers and other industry stakeholders now provide EPDs as a product option or are in the process of producing them. EPD's are not presently mandated but our industry supports their use moving forward to improve sustainability, investment and increase participation within the resource recovery framework.

Sustainability Weightings

Sustainability weightings have been used in tender and procurement processes for many years across Government and are a means to achieve desired outcomes with regards to sustainability and the broader circular economy.

Weightings, if adequately communicated, encourage industry to deliver more innovative and environmentally friendly solutions that help to protect the environment and human health. They can also be of benefit through the restructuring of the framework to cover new and emerging waste streams and therefore providing further incentive for industry to plan ahead and develop new products in the environment and planning space that will benefit the broader framework.

Incentive Industry – less complexity and green tape

Finally, we call upon the EPA, as we have also done with other arms of Government, to incentivise industry to develop new products that build and grow resource recovery efforts. Our members want to play a part in delivering more sustainable outcomes but are often hamstrung by an inconsistent approach to how waste is regulated, classified and managed across various jurisdictions, complex approval processes, high levels of green tape which include reporting requirements and, restrictive specification, and in some instances, the inability to make use of new waste streams.

CCAA has encouraged its members to play a powerful role in the innovation process through its Innovation Awards over the last decade and more. This year, we re-focussed our innovation awards around sustainability with a view to encouraging [long-term sustainability across all aspects of our members' businesses](#).

Thank you again for the opportunity to comment upon the EPA Resource Recovery Framework and to offer suggestions to improve outcomes to protect the environment and human health. We would appreciate the opportunity to discuss this matter with you in further detail. Accordingly, I can be contacted by email jason.kuchel@ccaa.com or on 0448 848 848.

Yours sincerely,



JASON KUCHEL
State Director, New South Wales & South Australia