Legal certainty: why we need to change the waste paradigm

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ABSTRACT

Australia’s adopted environmental policy holds closely to the precautionary principle without regard or recognition of the considerable scientific evidence gathered by industry supporting the beneficial and productive use of so called ‘wastes’. Whilst generators are eager to explore innovative, value-adding options for coal combustion products (CCPs), national environmental legislators and regulators continue to be hesitant in adopting more progressive and modern approaches towards sustainability, with definitions and categorisations of traditional ‘waste’ materials continuing.

The development of good legislation, regulations and other necessary measures designed to provide industry with the level of ‘legal certainty’ are a minimum requirement for capital investment. These investments provide for the efficient and effective recovery, value-adding and use of CCPs for beneficial ends. The identification of actual, potential and ultimate removal of unnecessary ‘contingent liabilities’ - attributable to the generation, processing or sale of materials defined as wastes - has been a key goal of the Ash Development Association of Australia.

This paper endeavours to address the traditional and outdated interpretations of the word ‘waste’ which continue to persist. Furthermore, it describes the Association’s journey and engagement with the New South Wales Department of Environment, Conservation, Climate and Water (DECCW) over the period 2007 to 2010 to develop a series of resource recovery exemptions that moves us further towards changing the waste paradigm.
INTRODUCTION

The environmental policy of many countries have been dominated by ‘first generation’ command and control legislation, although their perceived inefficiency has contributed to the development of ‘second generation’ market instruments in the 1980s. Now a ‘third generation’ of highly-flexible regulatory tools is emerging globally, comprised of private agreements, co-regulation, self-regulation and general exemption approaches to improve environmental outcomes. Australia, focused predominately on state-level environmental authorities with the sovereign responsibility for legislating on environmental policy, has been described as a laggard in the adoption of these new environmental policy instruments for waste classification, methods of assessment and classification systems (Papadakis and Grant 2003).

The adoption of environmental policies by Australian jurisdictions has held closely to precautionary principle with little regard or recognition of scientific evidence which has been developed and published by industry stakeholders, supporting the beneficial and productive use of so called ‘wastes’ to replace virgin resources (Heidrich, Ward et al. 2007). Accordingly, the recovery of non-traditional resources presents many challenges when set against prescriptive policy stances for industrial wastes. As a prerequisite to the following discussion, it is important to define some key terms and their appropriate application in the context of this paper. These definitions will assist understanding of the reasons behind the proposal for a paradigm shift in relation to the concept of ‘wastes’.

Industrial ‘waste’ is generally referred to as the type of waste produced by industrial activity, such as that formed by factories, mills and mines. Industrial wastes have been generated since the outset of the Industrial Revolution with associated reuse featuring in those early years.

An example can be drawn from the early 1900’s by oil exploration companies refining of crude oil into petroleum. During the extraction of crude oil various waste were extracted and generated, one being bitumen. Once considered an industrial waste for oil exploration companies, today bitumen is a highly valued material used in the manufacture of asphalt pavements. Similarly, coal combustion products (CCPs) have long been considered by-products of coal fired power generation and used as highly valued mineral resources to supplement societies increasing demand on natural resources, however CCPs continuously are defined as an industrial waste.

Waste is more broadly defined as any substance which is unwanted or unusable material. For example, many state environmental agencies, whilst adopting the above general definition for wastes, include the following additional caveat (NSW EPA 1999):

1 The precautionary principle generally means that if an action or policy has suspected risk of causing harm to the public or to the environment, in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action.

2 en.wikipedia.org/wiki/Industrial_waste

3 Bitumen is a mixture of organic liquids that are highly viscous, black, sticky, entirely soluble in carbon disulfide, and composed primarily of highly condensed polycyclic aromatic hydrocarbons.
A substance is not precluded from being waste for the purposes of [legislation] merely because it can be reprocessed, re-used or recycled.

Therefore where a substance is ‘wanted’ and can be ‘used’ as a resource -- can or should it be reclassified as a resource? Thus removing the stigma associated with the label of a ‘waste’. One could reasonably agree that there exists a need for a paradigm shift on classification of wastes. Unfortunately, however not all environmental policy makers are willing to adopt this stance.

This begs the question -- what does it take for a waste to become a resource for reuse in a modern resource-constrained society? These concepts of natural resource conservation and industrial ecology are generally consistent with the findings of the Report of the World Commission on Environment and Development: Our Common Future. The report concludes that sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs.

This paper further discusses the Ash Development Association of Australia (ADAA) six (6) year journey and learning’s on how to secure legal certainty in the recovery and reuse of CCPs within Australia.

LEGAL CERTAINTY - WHAT’S THE FUSS ABOUT?

Being an industry association with a significant historical interest in resource conservation and recovery policy throughout Australian jurisdictions, the Association has always supported and adopted pragmatic, scientifically-sound and consultative based action. The development of good legislation, regulations and other necessary measures designed to provide industry with the level of ‘legal certainty’ are a minimum requirement for capital investment. These investments provide for the efficient and effective recovery, value-adding and use of CCPs for beneficial ends. The identification of actual, potential and ultimate removal of unnecessary ‘contingent liabilities’ - attributable to the generation, processing or sale of materials defined as wastes has been a key goal of the Association.

This concept of ‘legal certainty’ and its importance should not be underestimated. Essentially, it underpins all corporate commercial decision-making processes where

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investments lead to secure associated ‘property rights’ arising from investment to develop recoverable resources. The concept of ‘contingent liabilities’ can be broadly applied in relation to the generation, processing and or use of materials defined as wastes, and relates to the potential for prosecution for use of these materials under the relevant regulation. Ultimately, any substance defined as a ‘waste’, regardless of its economic, social or environmental value, continues to be subject to strict controls and reporting requirements (Heidrich, Ward et al. 2007). Exposing participants to the use of CCPs therefore leads to legal uncertainty.

In the absence of legal certainty, investors, business owners and customers operating in highly-competitive commercial markets typically avoid the associated regulatory uncertainty or risks associated with an activity, resulting in the widespread loss of current and future beneficial utilisation opportunities for CCPs. The securing of legal certainty for CCPs supports ongoing sustainable industry development, whilst protecting the environment and human health - both of which are implicit in the community license to operate obligations for industry today.

OUR INDUSTRY - WHAT'S AT STAKE?

The ADAA conducts an annual survey for information regarding CCPs production, value-added activities and quantities sold by members and non-members for each calendar year. This information is published annually on the Association’s website. Information provided by members and non-members is collated and then aggregated into a set of national results.

For the 2009 calendar period, more than 14.5 Mt (million metric tonnes) of CCPs were produced in Australia.

- On a per capita basis, this equates to about 664 kg of CCPs produced per person from coal fired electricity production
- Overall 4.584 Mt (or 31%) of CCPs have been effectively utilised in various value-added products and applications or within some beneficial end-use.
- On a per capita basis, this equates to about 208 kgs of CCPs per person recycled or reused
- 1.787 Mt (or 12%) of CCPs were used in high value-added uses such as cementitious substitution for cement and concrete manufacture
- 0.5 Mt (or 3%) was used in non-cementitious applications such as agriculture et al. [an emerging end-use market] and
- More than 2.3 Mt (or 16%) was used in projects offering some beneficial use (e.g. onsite mine site remediation, local haul roads etc.).
- The surplus (10.1 Mt) materials are typically placed and managed safely in onsite storage facilities [ash dams] providing for future recovery for economic reuse opportunities.

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5 A property right is the exclusive authority to determine how a resource is used, whether that resource is owned by government or by individuals
Since 1975 more than 27 million tonnes of CCPs have been specifically used in cementitious applications or concrete manufacture, resulting in the saving or offsetting of more than 19 million tonnes of greenhouse gas emissions by displacing the manufacture of traditional carbon intensive products (e.g cement). (Heidrich, Hinczak et al. 2005)

REGULATORY REFORM - WHY DO WE NEED IT?

National and international research into the use of CCPs has grown markedly over the past several decades to investigate environmental advantages arising from recovery and use (Heidrich 2001; Heidrich 2003; Heidrich 2004; Heidrich 2005; Yunusa, Eamus et al. 2005; Heidrich, Ward et al. 2007). Environmental licensing considerations have also been identified as important drivers for generators. Generators are seeking to become more sustainable within operations across associated supply chains, thus closing the loop on industrial manufacturing processes, minimising wastes and identifying new and valuable uses for recoverable resources (Woodhead and Heidrich 2011). Although research has made significant contribution to identifying and determining the feasibility of using CCPs in various end-use applications [business maximising resources], scant attention has been given to understanding the legislative or regulatory potential for contingent liabilities arising from production or reuse.

Applying a narrow interpretation of the relevant legislations and associated regulations throughout Australian jurisdictions, a review conducted in 2003 determined CCPs are classified, treated or determined wastes (Aynsley, Porteous et al. 2003). Where waste classification guidelines are provided, these guidelines only determine wastes into various classes. These assessments are generally onerous and beyond those typically required for the determination of natural materials for the purposes of approving their reuse.

For example, generators located in New South Wales (NSW) proposing to reuse CCPs were subject to additional assessment criteria and were required to secure relevant licences for the capture, reprocessing, storage, movement and placement of the products before they could be considered suitable for reuse. Interestingly, the assessment criteria is specifically designed to deal with material placed in engineered and managed landfills, not for reuse applications. Assessment methods used accordingly were ‘worst case scenarios’ and therefore not reflective of the potential impacts in natural environmental conditions, e.g. neutral pH conditions. These guidelines provide for the classification of non-liquid wastes as being either: Inert, Solid, Industrial, or Hazardous. Whilst all assessments conducted on CCPs resulted in an ‘inert’ classification -- CCPs continued to be deemed wastes (Aynsley and Porteous 2004).

Queensland being another state jurisdiction adopted a different system of classification. A ‘beneficial use approval’ system operates under operational guidelines’. Again a series of assessments, similar to NSW, are required to demonstrate the materials are bona fide environmentally-friendly. Once assessed by departmental officers a beneficial

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7 Not legally binding exemptions
use approval may be granted. However, given that these approvals are not regulations in themselves, they may be further subject to legal determination. The conundrum presented when using developed guidelines for assessing CCPs is that:

- CCPs are assessed using waste guidelines,
- Whilst CCPs are classified as 'inert' and approved for reuse, they continue to be deemed as wastes and associated stigma and contingent risk.

When presented with this waste paradigm, the majority of Australian jurisdictions have indicated a willingness to embrace and promote concepts such as co-product, by-product reuse and recovery of mineral resources from industrial processes. However, many of these reuse opportunities are permitted only under licensing and permit requirements, meaning that CCPs continue to be deemed as wastes, and consequently carry the associated contingent liabilities.

One of the recommendations arising from the report *Coal Ash: A Review of Legislation and Regulations within Australia* (Aynsley, Porteous et al. 2003) was to engage with and encourage national and state environment authorities - in conjunction with relevant environmental policy leaders - to develop a national framework, countersigned by all parties, to clarify:

- National standards or guidelines for chemical thresholds;
- Criteria for the reclassification of CCPs as resources for reuse; and
- Product application scenarios for CCPs, and an agreed set of physical characteristics

During 2005, the Australian Government, through the Productivity Commission\(^8\) undertook an investigation into waste management policy across Australia. The Association made a number of written submissions, in addition to the making of a public testimony, addressing current state regulatory impediments to the enhanced uptake of CCPs. The *Waste Management Productivity Commission Report*\(^9\) was issued in early 2006 and raised a number of issues concerning Australian jurisdictions in relation to this paper (Productivity Commission 2006). Specifically, the Commission examined the ways in which resource efficiencies can be optimised to improve economic, environmental and social outcomes. The Commission examined and reported on the current and potential resource efficiency in Australia, having particular regard to:

- The economic, environmental and social benefits and costs of optimal approaches for resource recovery and efficiency and waste management, taking into account different waste streams and waste related activities;

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\(^8\) The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed simply, is to help governments make better policies in the long term interest of the Australian community. [http://www.pc.gov.au/](http://www.pc.gov.au/)

• Institutional, regulatory and other factors which impede optimal resource efficiency and recovery, and optimal approaches to waste management, including barriers to the development of markets for recovered resources;
• The adequacy of current data on material flows, and relevant economic activity, and how data might be more efficiently collected and used to progress optimal approaches for waste management and resource efficiency and recovery;
• The impact of international trade and trade agreements on the level and disposal of waste in Australia; and
• Strategies that could be adopted by government and industry to encourage optimal resource efficiency and recovery.

Coincident with the Productivity Commission enquiry, the Association was actively engaged in the development of the Cement Industry Action Agenda supported by the Australian Government Department of Industry Tourism and Resources. The report was published in June 2006 (DITR 2006). This Action Agenda builds on existing industry initiatives to deliver a comprehensive strategy to enhance the long-term sustainability of the industry. Its recommendations are aimed at:

• Providing greater incentives to adopt world best practice (WBP) technology, much of which will enhance energy efficiency through reduced reliance on fossil fuel – with commensurate reductions in greenhouse gas emissions;
• Addressing the regulatory barriers to increased uptake of substitutes for traditional raw materials and supplementary cementitious materials, thereby helping the community manage its growing waste disposal problem;
• Reducing transport costs and moving to increased use of rail and sea freight;
• Promoting the industry as an attractive career choice and addressing the skills shortage;
• Enhancing workforce productivity; and
• Maximising the protection offered by Australia’s anti-dumping regime.

This report, whilst focusing on the cement industry, had similar conclusions to those of the Productivity Commission’s findings in regards to addressing regulatory barriers to increase uptake of other industry by-products given wastes labels, namely:

• The development of a national approach to waste policy that addresses regulatory impediments to the enhanced uptake of secondary materials

The findings of the two reports provided significant focus on the effects of regulatory impediments, in particular the way CCPs are managed and how re-use opportunities can be further embraced. These reports, coupled with the Action Agenda working group’s implementation process, provided an appropriate and timely pathway to state environmental regulatory authorities to engage with, and develop, workable waste classification systems required by industry.

10 Association represented on the CIAA strategic leaders group by Robert Williams and Craig Heidrich
Lastly, these reports reaffirmed the Association’s industry business plan goals, and vindicated the Association’s investment [human and fiscal] into various enquiries and engagement with federal, state governments, regulators and reports. The recommendations from each further assisted our industry to gain traction in breaking down outdated waste paradigms and removing identified regulatory impediments to CCPs use. The Association’s strategic goals under its “Advocacy Objectives” states as one of its core objectives:

Advocate the environmental (e.g. Greenhouse reductions) and performance benefits of CCPs associated with current uses in cement & concrete via strategic collaboration within appropriate public and private institution and or forums. Identify and engage with relevant government agencies and industry associations that can support our goal to overcoming barriers [technical & regulatory] to increased use of CCPs, in particular through joint representation to have regulatory barriers removed.

The next section of this paper describes the Association’s journey and engagement with the New South Wales Department of Environment, Conservation, Climate and Water (DECCW) over the period of 2007 to 2010.

PROPOSED CHANGES FOR WASTE CLASSIFICATION

In 2007, proposed changes to simplify and streamline the current waste classification system were recommended to the New South Wales Department of Environment, Conservation, Climate and Water (DECCW), as part of an overall review of the classifications of ‘wastes’. The amendments adopted by the DECCW, however, fell short of providing an effective level of clarity in regards to definition of what should – and should not – constitute as a ‘waste’. Essentially, a mechanism [reclassification system] to remove materials completely from the regulations was not provided. Rather, DECCW’s amendments offered a resource recovery exemption process instead, similar to that offered in Queensland, regardless of the weaknesses previously identified in this approach. When compared internationally, seven years on, the label ‘laggards’ could equally, and appropriately, be applied.

A secondary, but more important implication was the impost of levies on any waste currently being used not covered by a resource recovery exemption. Based on legislated waste levy rates under section 88 of the Protection of the Environment Operations Act 1997 (NSW), generators were potentially exposed to new liabilities of $372 million dollars for CCPs produced annually in NSW. Given the discussion above about contingent liabilities, one can now suggest these have been real liabilities.

One international example of reclassification systems include the European Commission, who in February 2007 published the ‘Communication from the Commission to the Council and the European Parliament on the Interpretative Communication on Waste and By-products’ which offers a progressive distinction between waste and non-waste substances.
These guidelines set out to clarify the legal situation [providing legal certainty] for economic operators and competent authorities and effectively disentangles the status of waste materials with a more positive disposition towards classification according to its merits for further use in the economy. The simple three-part test establishes a check-list criteria by which a material will not be classified as waste. The test consists of the following inquiries;

- Is use of the material certain?
- Is the material ready for use without further processing (other than normal processing as an integral part of the production process)?
- Is the material produced as an integral part of the production process?

This significant international development holds great potential for a more progressive and modern approach towards waste reclassification.

RESOURCE RECOVERY EXEMPTIONS (LAND APPLICATION)

The Association’s recommendations for the establishment of a mechanism [reclassification system] to cater for the revision of the classification of CCPs from ‘wastes’ to ‘resources’ were not adopted by the DECCW. The Department’s proceeded with the development of the Resource Recovery Exemptions (RRE)\(^{11}\), and provides the only mechanism for exempting ‘wastes’. Materials not covered by these exemptions will incur levies for generation and use as discussed above. The only pathway to reducing the regulatory cost burdens was to engage and develop a series of exemptions for CCPs. In summary, once an RRE is granted, CCPs will continue to be referenced as ‘wastes’ by definition, despite satisfying the criteria for exemption.

The Association board resolved to consult with its members and develop a series of exemptions for CCPs on a collective basis. The granting of exemption/s would beneficially remove potential future liabilities for producers and potentially open up new market opportunities for reuse. Initial exemptions would cover the following CCPs materials:

- Fly ash (FA)
- Furnace Bottom Ash (FBA)

The next section of this paper describes the Association’s engagement with its members and the New South Wales Department of Environment, Conservation, Climate and Water (DECCW) over the period of 2008 to 2010.

ENGAGEMENT PROCESS AND CHRONOLOGY OF EVENTS

The following represents a timeline of the consultations conducted with the DECCW and the status of exemption applications for CCPs use in application to land for civil and construction purposes.

**March 2008**
Initial advice from DECCW regarding pending changes to PoEOA (NSW) to incorporate provisions for exemptions. Association Board resolves to develop a series of exemptions for CCPs on a collective basis.

**April 2008**
Initial meetings with DECCW regarding summary of proposed exemption key elements. Amendments to Act came into force 28 April 2008.

**April/May 2008**
Consultation with Association members on key elements, e.g. Table 2 “Chemical contaminants and material characteristics”. Series of meetings conducted with generator representatives.

**June 2008**
Consultation and agreement reached with representatives and DECCW on specific thresholds for “Chemical contaminants and material characteristics”

**July/August 2008**
DECCW provide first full draft version exemptions. Consultation with members on full draft exemption and conditions.

**September 2008**
Meeting with DECCW to provide feedback on full draft exemption and conditions wording for exemptions only. In particular, ASA alternative for conditions limiting use in/near fresh water.

**October 2008**
DECCW provided second revised full draft exemption and conditions. Many recommendations were adopted, but use in/near water not resolved. Further consultation with selected members to capture and provide to DECCW additional data/case studies to support the case for use in/near saltwater.

**November 2008**
Meeting/s with DECCW to provide responses to second draft exemptions. Amendments defining who is a generator, who is a processor and who is a consumer. That is, the generators responsibilities and the processors responsibilities and salient differences. DECCW were not prepared to incorporate into the general exemption, given the context legislation is ‘application to land’ not ‘application to water’.

**December 2008**
DECCW provided revised full draft exemption and. Association submits agreed final draft exemptions. DECCW advised exemptions require final internal review prior to issuing in March/April 2009.
Jan/April 2009  DECCW advise internal consultation with regional stakeholders still ongoing. Association maintains regular contact with key DECCW personnel.

May/July 2009  DECCW advise that senior staff (Director and above) were reviewing agreed draft. The Association maintain regular contact with key DECCW personnel. DECCW advise no progress internally.

August 2009  Following our final submission seven (7) months ago, the Association was still awaiting for the agreed draft to be gazetted as advised. Association sought insight into possible reasons for delay, and received none. Board considers options and resolved to escalate the matter and seek some clarification and action from senior department officers and Deputy Director. Letter sent to Deputy Director General, Environment Protection and Regulation Group, seeking explanation for 7 month delay, moreover that DECCW gazette agreed draft ASAP. Deputy Director apologies for delays and advised exemptions will be expedited.

September 2009  DECCW senior officer ‘assumes control’ of consultation process - citing problems with the current exemption/s developed by DECCW officers over 2008. Commits to concluding exemption development process before December 2009, but requires Association to reconsider new amendments by DECCW.

Association receives further and unexpected additional amendments from the DECCW. Preferred and agreed exemption conditions resulting from extensive and transparent consultation over some ten (10) months during 2008 were removed without explanation or justification. Association representative meets with DECCW key personnel to discuss rational behind amendments.

Association members do not support the view that these additional amendments will improve the levels of environmental protection afforded under the previously developed draft exemptions, suggesting the ‘goal posts’ have moved.

October 2009  Board Executive [President, Vice President and Chair of the Technical Committee] meet to DECCW amendments. Board of the Association considers various OPTION or pathways to finalise the overdue and originally submitted exemptions.
**Option 1** - Resubmit the original agreed exemption with DECCW back in December 2008.

**Option 2** - (DECCW preferred option) association to reconsider DECCW new amendments, consult with members, gather required additional data and submit recommendations.

**Option 3** - Political pathway of seeking to meet with Minister about ongoing delays and failure of the department to follow agreed exemption development process.

Board consensus was to address [in detail] DECCW’s revised draft and consult [quickly] with selected members and provide feedback to DECCW. The Association agreed to re-engage selected members and collectively provide considered responses to the additional amendments, supported with appropriate arguments and supporting evidence for the DECCW’s consideration.
Association commences another round of consultation with members. Submits to DECCW prompt detailed responses is a genuine act to conclude this matter to our mutual interest.

November 2009  
Association submits formal response, with supporting justifications, to DECCW. DECCW advise final draft version before Dec 2009.

December 2009  
DECCW advises the Association that its officers still reviewing the comments and feedback provided the Association. DECCW will endeavour to have a response in early Jan 2010.

January 2010  
Contacted DECCW. No progress with comments and feedback provided by Association. Meeting arranged between DECCW senior officers and Association executive. DECCW apologies for ongoing delays, recommits to finalising in next few weeks. Minor amendments proposed. Conditions agreed to in regards to NORM’s assessment report.

February 2010  
Association reviews minor amendments in regards to protected areas for application purposes. Members agree to proposed changes with minor amendments. Submitted to DECCW.

March 2010  
DECCW gazettes exemptions for CCPs.


CONCLUDING OBSERVATIONS

Australia’s adopted environmental policy continues to holds closely to the precautionary principle without regard or recognition of the considerable scientific evidence gathered by industry supporting the beneficial and productive use of so called ‘wastes’. Traditional, and admittedly, outdated interpretations of the word ‘waste’ continue to persist.

Whilst waste generators are eager to explore innovative, value-adding options, national environmental legislators and regulators continue to be hesitant in adopting more progressive and modern international definitions and categorisations of traditional ‘waste’ materials.

Australia, being a federation of states, sovereign responsibility for legislating on environmental policy held by state jurisdictions. State control can results in dislocation thus inhibiting the development of nationally-consistent legislation, policy, and standards which recognise the true value of coal combustion product throughout the country.
It is hoped that this management case study has effectively demonstrated not only how wastes can be minimised through the strategic development of supply chains, but furthermore, that current research has verified that it is indeed safe to do so.

BIBLIOGRAPHY


