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Dark side of the boom (Victoria)

What we do and don't know about mines, closures and rehabilitation in Victoria

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Little data is available to the public on the clean-up from the mining boom. State government agencies often lack basic information on how many mines are in operation, with still less published on closures and abandonments.

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Summary

As the mining boom winds down and the mining clean up boom begins, mine site rehabilitation and mine abandonment are emerging as major issues for Australian communities, governments and taxpayers. All stakeholders will need information on the status of mines and their rehabilitation efforts to ensure this is carried out in a way that does not leave taxpayers and the environment with the costs of abandoned mines and poorly rehabilitated sites.

Unfortunately few reliable statistics are available. This report focuses on Victoria and is part of a series that will compile data from each state's relevant department on numbers of mines that are operating, have suspended operations (often referred to as "care and maintenance"), are being closed and have been abandoned. We also summarise available information on the environmental bonds that miners pay to governments. Results for Victoria are based mainly on correspondence with the agency responsible for overseeing the mining industry, the Energy and Earth Resources division of the state's Department of Economic Development, Jobs, Transport and Resources (DEDJTR). Results are summarised in the Table below:

Table 1: Victoria summary

Category	Low	High
Mines in operation	47	162
Mines in care and maintenance	122	122
Mines closed and undergoing final rehabilitation	2	Unknown
Mine sites rehabilitated and relinquished or sold	1	Unknown
Abandoned mines	Average one per year	19,010
Rehabilitation bonds held	$160 million	$160 million
Estimate of total current rehabilitation liabilities	$160 million	>$938 million
Estimate of current rehabilitation liabilities for abandoned mines	Unknown	Unknown

A key point to note in Table 1 is that while Victoria has up to 150 operating mines and 122 mines in care and maintenance, the department was only able to name one example of a mine site that has been fully rehabilitated and two others that are potentially in the final stages of closure.

The stakes are high in Australia's mining clean up boom. The Australian public risks incurring billions of dollars in rehabilitation costs that could either require taxpayer funding or result in a degraded environment if rehabilitation is not well managed and regulated. This would represent a huge subsidy to the mining industry. The large number of historical and modern abandoned mines compared with the handful of fully rehabilitated sites shows that the mining industry does not have a good record at cleaning up after itself.

The last ten years have seen an increase in public attention paid to mining activity, with community groups and NGOs playing a key role in working with and monitoring the mining industry. Provision of better data on mines in each state, their status and history, would empower the community, the industry and the public service to ensure that sites are properly rehabilitated.

Introduction

The old cliché goes that if you can't measure it, you can't manage it. As Australia attempts to manage the clean-up from the mining boom, it is important to see how the government agencies measure this process.

Australia's government agencies publish a bewildering range of statistics on mining, such as production volumes, revenue, royalty forecasts, capital expenditure and miners employed. Twice a year, the Office of the Chief Economist identifies what mining projects might exist in the future – those at the 'publically announced' stage, those at the 'feasibility stage' and other stages of development or speculation.[1]

While figures on current profits and future projects are easy to get, measurements of the clean-up and rehabilitation of mine sites are far harder to come by. This report compiles this data for Victoria, to the extent that it exists. This includes:

- Number of operating mines
- Number of non-operational mines in 'care and maintenance' and length of time mines have been in care and maintenance
- Number of mines shut-down and undergoing final rehabilitation
- Number of mines fully rehabilitated with site relinquished back to the state or sold to a third party
- Sum of rehabilitation bonds held and estimates of likely rehabilitation expenses
- Number of abandoned mines.

A copy of the questions sent to DEDJTR is provided in the appendix.

Compared to statistics on the future of mining, or on exploration expenditure in the last financial year, statistics on the number of operating mines or the number of mines in care and maintenance may seem simple. However, they are far more difficult to access. Part of this difficulty is definitional. While the spot price for Newcastle Benchmark thermal coal or the number of tonnes of iron ore shipped through the Port of Darwin are objective, classifying and counting the number of mines in a state requires subjective decisions. Still more complicated are the questions of how many mines are in care and maintenance and how many are being closed.

[1] OCE (2015) *Resources and Energy Major Projects*, http://www.industry.gov.au/Office-of-the-Chief-Economist/Publications/Pages/Resources-and-energy-major-projects.aspx#

When it comes to data on the end of mine operations – of how many mines have been abandoned or how many have been successfully rehabilitated and relinquished for other use – estimates are not ambiguous so much as but absent. There is very little official, comprehensive, publically available data on mine abandonment or relinquishment in Australia.

What data is available on all aspects of mine rehabilitation in Australia is generally poorly defined and often contradictory. Getting data is difficult, as is getting explanations of what the data does or doesn't represent. While some states provided relatively detailed data in a timely manner, in general the government departments that manage and regulate the mining industry are not well equipped to provide this information to the public. While individual representatives are often diligent and helpful, the departments as a whole do not make important data accessible.

For example, obtaining data on Victoria required 17 phone calls and emails to the relevant department over six months.

As the resources boom subsides and many mining projects come under financial pressure, Australian governments and communities need information to ensure that mine rehabilitation and closure arrangements do not place the public at financial and environmental risk. Currently, much basic information is not available. This report collates what information is available and is hopefully a step towards improving this situation.

Victoria

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INTRODUCTION

Mining is a small part of Victoria's economy, although historically its resources have been of national significance. The state's goldfields were the site of the gold rush of the 1850s and 60s, and several commercial mines and many recreational prospecting sites still operate. Victoria's 430 billion tonne resource represents over 20% of the world's recoverable brown coal. Three brown coal mines, Hazelwood, Loy Yang and Yallourn, serve power plants responsible for most of the state's electricity generation.[2] Base metals and mineral sands are also mined in the state.

Mining is responsible for just 0.2% of the state's employment (7,000 people), and 0.4% of its full-time employment.[3] Royalties, accounting for an increase in the brown coal

[2] Victorian Department of Economic Development, Jobs, Transport and Resources (2016) *Lignite/Brown Coal,* http://www.energyandresources.vic.gov.au/earth-resources/victorias-earth-resources/coal and Geoscience Australia (2016) *Brown Coal,* http://www.australianminesatlas.gov.au/aimr/commodity/brown_coal.html

[3] Australian Bureau of Statistics (2016) *6291.0.55.003 Labour Force, Australia, Detailed, Quarterly Table 05. Employed persons by State, Territory and Industry division of main job (ANZSIC),* http://www.abs.gov.au/Ausstats/abs@.nsf/mf/6291.0.55.003

royalty rate, were expected to bring in $85 million in revenue in financial year 2016–2017. This is 0.1% of total revenue.[4]

The Energy and Earth Resources division of the state's Department of Economic Development, Jobs, Transport and Resources is responsible for developing policy, attracting and facilitating investment, responsibly managing earth resources, supporting investment in technological development and providing an efficient regulatory framework that effectively manages potential risks.[5]

MINES IN OPERATION

The Victorian Department of Economic Development, Jobs, Transport and Resources (DEDJTR) has a database of mining operations in the state. In late 2015 the DEDJTR database had 162 mines registered as operational, broken down in Table 2 below:

Table 2: Operational mines Victoria

Type	Number
Gold	91
Gypsum	48
Coal and peat	6
Base metals	5
Kaolin	5
Mineral sands	4
Other	2
Total	**162**

Source: Department of Economic Development, Jobs, Transport and Resources.

The Department emphasises that the majority of gold and gypsum mines are "very small scale". It seems likely that many of these mines are different parts of the same mine, or not actually operational.

While the DEDJTR database contains 91 gold mines, the same department's GeoVic mapping application lists only five – Balmain Gold, Unity Mining, Fosterville Gold Mine, Mandalay Resources Costerfield Operations and Stawell Gold Mine (which has since closed).[6] These five mines accounted for over 99 percent of Victorian gold production

[4] Victorian Government (2016) *2016–17 Budget Papers, Budget Paper 5: Statement of Finances,* pp 6, 164, https://www.budget.vic.gov.au/budget-papers

[5] Victorian Department of Economic Development, Jobs, Transport and Resources (2016) *About Energy and Earth Resources,* http://www.energyandresources.vic.gov.au/about-us

[6] Martin (2016) *Stawell gold mine in Victoria to close, up to 150 jobs on the line*, http://www.abc.net.au/news/2016-12-13/150-jobs-axed-as-stawell-gold-mines-close/8114884

in 2013, with 30 others reporting some production.[7] Victoria, with its long history of gold mining, has an active small scale and hobbyist fossicking community.[8] The Department's statistics make it difficult to understand the scale and nature of the mines in the state.

Similarly, while the Department's database says there are 48 operating gypsum mines, the National Gypsum Miners Association website says there are only 20 commercial gypsum mines in Victoria.[9]

MINES IN CARE AND MAINTENANCE

DEDJTR's database does not distinguish between mines that have been closed temporarily and those that will not open again. According to the database there are 122 mines that are either in care and maintenance or undergoing final rehabilitation.

Table 3: Non-operational mines in Victoria

Type	Number
Gold	99
Gypsum	15
Coal and peat	2
Kaolin	2
Mineral sands	2
Total	**122**

Source: Department of Economic Development, Jobs, Transport and Resources.

As with estimates of operational mines, numbers of non-operational mines include substantial numbers of very small gold and gypsum mines. The DEDJTR database does have data on when mines went into 'non-operational' status, shown in Table 29 below:

Table 4: Mines go into non-operational status in Victoria

Year of closure	Number
2011-2015	68
2006-2011	17
2005 and before	37
Total	**122**

Source: Department of Economic Development, Jobs, Transport and Resources.

[7] Victorian Department of Economic Development, Jobs, Transport and Resources (2013) *Earth Resources Regulations – 2012/13 Statistical Report,* table 3.3C, http://earthresources.efirst.com.au/product.asp?pID=1131&cID=46

[8] See, for example, Prospectors and Miners Association of Victoria (2016) *Welcome,* http://www.pmav.org.au/#

[9] NGMA (2009) *Gypsum Mining in Victoria,* http://www.gypsum.asn.au/gypsum_mining.htm

These numbers are also dominated by hobbyist gold mines and small-scale gypsum mines. Regardless of scale, the database shows that 37 mines have been non-operational in Victoria for at least a decade without being fully rehabilitated.

One of these sites is the Nagambie Mine, a gold mine in central Victoria, near Seymour. Gold was discovered in 1985 by Perseverance Corporation which developed and operated an open cut gold mine between 1989 and 1993. The mining of the two pits produced around 17 million tonnes of ore and untreated overburden waste rock.

The site and mining lease changed hands several times between 1993 and 2008, when it was acquired by Nagambie Resources Limited (NAG). NAG's ultimate goal is to return the site to its original farming land-use, and has taken several innovative approaches to rehabilitating the site.

The stockpiles of overburden material are currently being utilised for the production of crushed rock materials, which are used locally for road sheeting, while the treated ore is being reprocessed to produce aggregates for use in concrete.

The most ambitious plans for rehabilitating the site involve the two-large open pits, which are currently full of poor quality groundwater. The company believes the water filled pits are the perfect place to store Potential Acid Sulfate Soils (or PASS); a naturally occurring material that contains compounds that can become problematic when exposed to air. Underwater storage of PASS is often the most environmentally desirable offsite treatment option.[10]

Large amounts of PASS material will be generated during the construction of Melbourne's major infrastructure projects such as the Melbourne Metro Rail Project, West Gate Tunnel Project and other high-rise developments. NAG hopes to reuse this PASS material to fill in the pit voids of the old mine.

This example shows a key reason why mine sites are sometimes left in non-operational states for long periods – formerly discarded material can become valuable as markets and technology change, while the constraints of the 'tyranny of distance' can reduce as cities expand into the regions Furthermore, it provides an example of how all stakeholders need to work together to achieve potentially advantageous rehabilitation and final closure solutions.

[10] Victorian Department of Sustainability and Environment (2010) *Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils*, https://www.coastsandmarine.vic.gov.au/__data/assets/pdf_file/0016/31237/CASS-BPMG-2010.pdf

SHUT-DOWN, FINAL REHABILITATION AND RELINQUISHMENT

The DEDJTR database has data on approved final rehabilitation, but does not differentiate between mines handed back to the state and mines on private property found to be fully rehabilitated. As with other statistics in Victoria, they are dominated by very small gold and gypsum mines. Data is only available since 2013:

Table 5: Final rehabilitation in Victoria

Type	2013-2015
Gold	34
Gypsum	6
Coal and peat	1
Kaolin	1
Mineral sands	2
Total	**44**

Source: Department of Economic Development, Jobs, Transport and Resources.

A representative of DEDJTR gave some examples of final rehabilitation projects – the Douglas mineral sand mine near Horsham, other mineral sand mines owned by the same company near Ouyen, the Wemen mineral sands mine and the Cranbourne Sand Quarry. [11] While the Douglas mine has received approval as being fully rehabilitated, it is now proposed to be used as a dump for radioactive mining waste.[12] The Ouyen mines are still being rehabilitated, a project that may take up to seven years.[13]

The Cranbourne Sand Quarry was closed in the 1960s and has operated as part of the Royal Botanical Gardens since 2006.[14] While a good example of successful rehabilitation to a productive use, this hardly qualifies as a recent example.

[11] Correspondence with the department, February and August 2016.

[12] Hollingworth (2016) *EPA defends time taken to assess Douglas mine works approval application,* http://www.abc.net.au/news/2016-05-09/epa-defends-time-taken-to-assess-iluka-mine-works-approval-bid/7395048

[13] ABC News (2015) *Mildura' Garraway Group wins $35m contract to rehabilitate Iluka mineral sands mine near Ouyen,* http://www.abc.net.au/news/2015-04-02/mildura-firm-wins-35m-contract-to-rehabilitate/6367038

[14] Casey-Cardinia Library Corporation (2014) *Quarries and sand mines,* http://caseycardinialinkstoourpast.blogspot.com.au/2014/05/quarries-and-sand-mines.html and Royal Botanic Gardens Victoria (2016) *Visit Cranbourne,* https://www.rbg.vic.gov.au/visit-cranbourne

MINE ABANDONMENT

Victoria's long mining history has resulted in a large number of small abandoned mines or mine features. One estimate of this largely historical legacy puts the figure at over 19,000 mines, mainly in the goldfields region.[15]

More recently, DEDJTR reports that over the past 25 years, an average of around one mine per year is abandoned by the operator and the state has used bonds paid to remediate the site. No abandonments have been recorded in the last two years. As with most other statistics provided by the department, the majority of these mines are small scale gold and gypsum mines.

One example cited by the Department was the Benambra mine in the east of the state. It operated for only four years in the 1990s before being abandoned by its owner, Denehurst. The Victorian government spent around $7 million on remediation, apparently far more than was held as a bond.[16] There is a current proposal to reopen the mine, despite the considerable controversy around its earlier incarnation.[17]

BONDS

Bonds are supposed to cover the entire mine rehabilitation cost[18] and according to the Department of Economic Development, Jobs, Transport and Resources this is reassessed every two to ten years depending on the risk associated with the operation.[19] The Australia Institute has been unable to find an assessment of all mines

[15] Unger et al (2012) *Mapping and Prioritising Rehabilitation of Abandoned Mines in Australia*, https://www.researchgate.net/publication/236900961_Mapping_and_Prioritising_Rehabilitation_of_Abandoned_Mines_in_Australia

[16] The Australian (2006) *Bailieu linked to mine debacle,* http://www.theaustralian.com.au/news/nation/baillieu-linked-to-mine-debacle/story-e6frg6nf-1111112492922 and Mining Legacies (2016) *Benambra,* http://www.mininglegacies.org/mines/vic/benambra/

[17] IGO (2016) *Stockman Project,* http://www.igo.com.au/irm/content/stockman.aspx?RID=304

[18] Victorian Department of Economic Development, Jobs, Transport and Resources (2016) *Establishment and Management of Rehabilitation Bonds for the Mining and Extractive Industries,* http://www.energyandresources.vic.gov.au/earth-resources-regulation/licensing-and-approvals/minerals/guidelines-and-codes-of-practice/establishment-and-management-of-rehabilitation-bonds-for-the-mining-and-extractives-industries

[19] The matrix is publicly available: Victorian Department of Economic Development, Jobs, Transport and Resources (2016) *Establishment and Management of Rehabilitation Bonds for the Mining and Extractive Industries,* Appendix II, http://www.energyandresources.vic.gov.au/earth-resources-regulation/licensing-and-approvals/minerals/guidelines-and-codes-of-practice/establishment-and-management-of-rehabilitation-bonds-for-the-mining-and-extractives-industries; see also Victorian

in Victoria and whether the bonds actually cover the estimated rehabilitation costs. However, the independent inquiries that have been made have found serious shortcomings in the size of the bonds and how they are assessed.

The government's second inquiry into the 2014 fire at the Hazelwood brown coal mine (held in 2015) scrutinised, among other things, the adequacy of the rehabilitation bonds for all three brown coal mines in Victoria. An independent report to the inquiry found that rehabilitation bonds were seriously inadequate. At that time, the three coal mines had each paid approximately $15 million in security bonds. But the independent report estimated Yallourn's rehabilitation costs to be between $167 million and $262 million, Loy Yang's to be between $221 million and $319 million, and Hazelwood's to be between $264 million and $357 million; for a total of between $652 million and $938 million.[20]

The mines have subsequently paid more into their bonds: as at June 2016, Yallourn's bond now stands at $34.25 million, Loy Yang's at $56 million and Hazelwood's at $36.7 million.[21] This is 50% of the mines' self-assessed liabilities, and by 31 December 2016 they should have paid bonds equal to 100% of the self-assessed liabilities.[22] The amounts will be independently reviewed in 2017.[23]

Before the bond revision, the independently-assessed liability was more than ten times as much as the government held in bonds. Even now, the bonds only cover 14–19% of the total liability. The mines' self-assessed liability is half what the independent assessment of their liability is. The state and ultimately Victorian tax payers are at risk of taking on a large liability if one or more of these brown coal companies default.

Figure 1 below summarises the difference between original bonds paid by companies and the subsequent estimates of liabilities:

Department of Economic Development, Jobs, Transport and Resources (2013) *Earth Resources Regulations – 2012/13 Statistical Report,* http://earthresources.efirst.com.au/product.asp?pID=1131&cID=46

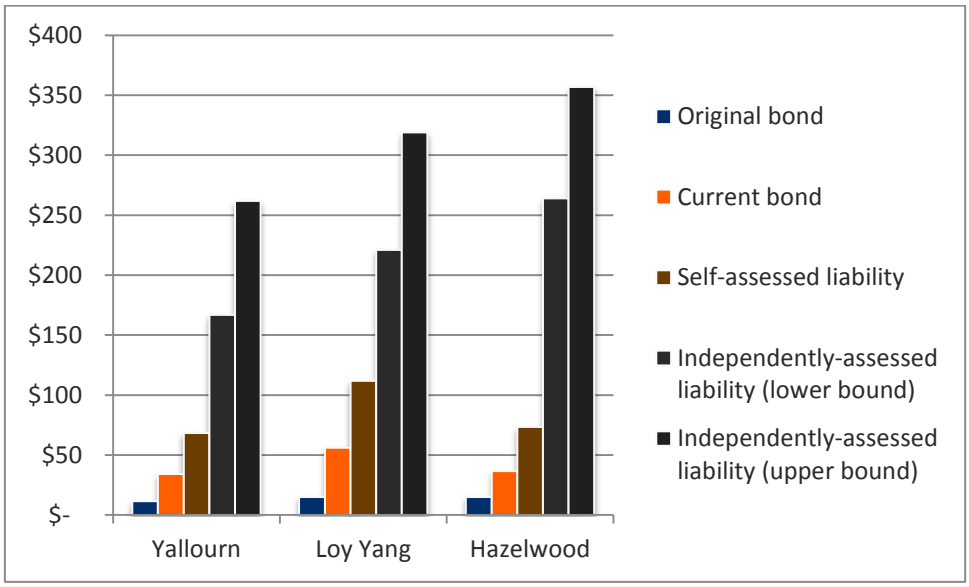
[20] Hazelwood Mine Fire Inquiry (2015) *Report 2015/2016 Volume IV – Mine Rehabilitation,* p 105, http://hazelwoodinquiry.vic.gov.au/wp-content/uploads/2015/09/Hazelwood-Mine-Fire-Inquiry-Report-2015-2016-Volume-IV-%E2%80%93-Mine-Rehabilitation-web.pdf

[21] Correspondence with the department, August 2016.

[22] Victorian State Government (2016) *Hazelwood Mine Fire Inquiry: Victorian Government Implementation Plan,* p 72, http://www.dpc.vic.gov.au/index.php/news-publications/hazelwood-mine-fire-inquiry-implementation-monitor

[23] Correspondence with the department, August 2016.

Figure 1 Comparison of bonds and liabilities ($ millions)



Victorian State Government (2016) *Hazelwood Mine Fire Inquiry: Victorian Government Implementation Plan,* p 72 and Hazelwood Mine Fire Inquiry (2015) *Report 2015/2016 Volume IV – Mine Rehabilitation,* p 105.

The Hazelwood Mine Fire Inquiry found that the department had deficiencies in skills to properly assess rehabilitation costs and had serious concerns that the current bonds paid by the brown coal mine were far too low.[24] It recommended the department acquire the necessary skills and reassess to size of the bonds. The government has since allocated money to implement the recommendations of the Hazelwood mine fire inquiry, and issued an implementation plan and an annual progress report. The implementation plan does include a commitment to review the qualifications of its current audit team.[25]

Most bonds are typically very small and the large part of the almost $160 million in bonds[26] is from a handful of mines (the data pre-dates the brown coal bond adjustments; the figure will presumably be higher now). Table 31 shows that the top ten mine bonds in Victoria accounts for a little bit more than $145 million out of the

[24] Hazelwood Mine Fire Inquiry (2015) *Report 2015/2016 Volume IV – Mine Rehabilitation,* parts 11, 12, http://hazelwoodinquiry.vic.gov.au/wp-content/uploads/2016/04/Hazelwood-Mine-Fire-Inquiry-Report-2015-2016-Volume-IV-%E2%80%93-Part-11-12.pdf

[25] Victorian State Government (2016) *Hazelwood Mine Fire Inquiry: Victorian Government Implementation Plan,* p 73, http://www.dpc.vic.gov.au/index.php/news-publications/hazelwood-mine-fire-inquiry-implementation-monitor

[26] Victorian Department of Economic Development, Jobs, Transport and Resources (2013) *Earth Resources Regulations – 2012/13 Statistical Report,* p 23, http://earthresources.efirst.com.au/product.asp?pID=1131&cID=46

$160 million the state hold in bonds. It is therefore very important that these large mines' bonds are assessed correctly.

Table 6: Top 10 bonds for mines in Victoria

Company	Bond
Basin Minerals Holdings Pty Ltd	$34,824,000
Basin Minerals Holdings Pty Ltd	$25,050,000
Basin Minerals Holdings Pty Ltd	$24,580,000
AGL LYP 3 Pty Ltd	$15,000,000
Hazelwood Power Corporation Pty Ltd	$15,000,000
Yallourn Energy Pty Ltd	$11,460,500
Fosterville Gold Mine Pty Ltd	$6,757,000
Stawell Gold Mines Pty Ltd	$4,803,000
Unity Mining Ltd	$3,934,000
Balmaine Gold Pty Ltd	$3,800,000
Top ten total	**$145,208,500**

Source: Geovic database. Note that this pre-dates the 30 June 2016 increase in bonds from the brown coal plants.[27]

The three coal mines were first assessed in the 1990s.[28] Yallourn's bond was reduced to $11,460,500 in 2004.[29] This would appear to have been a mistake when we consider the AECOM independent report that suggests the cost of rehabilitation should be between $167 million and $262 million, and even the Yallourn self-assessment says that the liability is $68.5 million. However, a spokesperson from the department emphasised that the 2004 bond reduction is not directly comparable to either other figure as it is a result of a different methodology with different unit rates directed at achieving a different outcome.[30]

Nonetheless, the independently-assessed liability for just one coal mine is greater than the total bonds held by the state for all mines.

[27] Department of Economic Development, Jobs, Transport and Resources (2016) *Geovic*, http://er-info.dpi.vic.gov.au/sd_weave/anonymous.html

[28] Hazelwood Mine Fire Inquiry (2015) *Report 2015/2016 Volume IV – Mine Rehabilitation,* p 33, http://hazelwoodinquiry.vic.gov.au/wp-content/uploads/2016/04/Hazelwood-Mine-Fire-Inquiry-Report-2015-2016-Volume-IV-%E2%80%93-Part-11-12.pdf. Note that Victorian electricity privatisation occurred in the 1990s.

[29] Hazelwood Mine Fire Inquiry (2015) *Report 2015/2016 Volume IV – Mine Rehabilitation,* p 33, http://hazelwoodinquiry.vic.gov.au/wp-content/uploads/2016/04/Hazelwood-Mine-Fire-Inquiry-Report-2015-2016-Volume-IV-%E2%80%93-Part-11-12.pdf

[30] Correspondence with the department, August 2016.

Victoria provides a breakdown by mine of rehabilitation bonds paid – something no other state does. Despite the attention paid to the brown coal mines, the largest bonds currently held relate to mineral sand mines, as shown in Table 31 above.

The three largest bonds (prior to the upward adjustment of the brown coal bonds) all belong to the same company, Basin Minerals Holdings. These bonds are for three mineral sand mines that produce zircon, rutile and ilmenite. Their production accounts for about 15 per cent of Victoria's mineral production by value, behind brown coal (45 per cent) and gold (30 per cent).[31] The bonds were assessed and paid between 2002 and 2010, and the largest bond is the one assessed most recently. It is unclear whether the actual rehabilitation cost of these mines is comparable to that of the three brown coal mines. It may be that the mineral sands bonds are higher because they were assessed more recently, or according to a different methodology.

[31] Victorian Department of Economic Development, Jobs, Transport and Resources (2013) *Earth Resources Regulations – 2012/13 Statistical Report,* http://earthresources.efirst.com.au/product.asp?pID=1131&cID=46

Conclusion and recommendations

The stakes are high in Australia's mining clean up boom. The Australian public stands to incur billions of dollars in rehabilitation costs through either use of taxpayer funds or a degraded environment if rehabilitation is not well managed and regulated. This would represent a huge subsidy to the mining industry. The large number of historical and modern abandoned mines compared with the handful of fully rehabilitated sites shows that the mining industry does not have a good record at cleaning up after itself.

The last ten years have seen an increase in public attention paid to mining activity, with community groups and NGOs playing a key role in working with and monitoring the mining industry. Provision of better data on mines in each state, their status and history, would empower the community, the industry and the public service to ensure that sites are properly rehabilitated.

Appendix

Initial contact with state government departments was based around the following questions:

1. How many operational mines are in the State?
2. Can you provide a breakdown of what these mines are producing?

3. How many mines are currently in care and maintenance? Of these, how many went into care and maintenance in the last:
    (a) 5 years
    (b) 10 years
    (c) 20 years
    (d) 30 years

4. How many mines have closed and are undertaking final rehabilitation? How many began this process in the last:
    (a) 5 years
    (b) 10 years
    (c) 20 years
    (d) 30 years

5. How many mines have had rehabilitation completed and been relinquished back to the state or sold to third parties for other use? How many in the last:
    (a) 5 years
    (b) 10 years
    (c) 20 years
    (d) 30 years

6. How many mines have been abandoned without full rehabilitation? How many in the last:
    (a) 5 years
    (b) 10 years
    (c) 20 years
    (d) 30 years

7. How much is being held in rehabilitation/environmental bonds?
8. Can you provide an estimate of current rehabilitation liabilities in the state?