

**Stepping outside the box – Regional economic opportunities for a brighter future for post-mining land use.**

**Leanne Bowie and Jonathan Fulcher**

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# Stepping outside the box – Regional economic opportunities for a brighter future for post-mining land use.<sup>1</sup>

Leanne Bowie and Jonathan Fulcher

## 1. Introduction

Mining is a temporary land use; normal mining investment is made on the legal basis that tenements can be relinquished after resource extraction and rehabilitation is complete. If that relinquishment can be effected with a post-mining land use that generates income, risks of relinquishment for the miner and the State are better managed. There have been many examples around the world of successful and innovative post-mining land uses. However, some jurisdictions have struggled more than others with facilitating prompt relinquishment of mining leases and conversion to economically valuable post-mining land uses.

On 24 November 2017, the COAG Energy Council for the Commonwealth Resources and Engagement Working Group agreed to investigate a nationally consistent approach to mine site rehabilitation financial obligations by mid-2018. At this stage, the States and Territories do not seem to be drawing closer even in relation to a definition of what constitutes ‘rehabilitation’, leaving aside the question of disparate financial obligations.

This paper focuses on Queensland as a case study. At the time of this paper, the Queensland Government is currently working through a process of trying to improve its management of mined land rehabilitation, but Queensland is by no means unusual in having some room to improve its system of rehabilitation and post-mining land use planning. For example, there have been recent or current reviews about mine rehabilitation issues in every Australian State that has a mature mining industry (noted in Appendix 1 to this paper).

This paper provides a snapshot of the wide variety of successful and imaginative post-mining land uses around the world and analyses some key drivers for that success. Not surprisingly, these drivers tend to have considerable overlap with the drivers for successful redevelopment of former quarries, landfills and manufacturing sites. Another factor that mining has in common with former quarries, landfills and manufacturing sites is that successful post-mining land uses can be and are developed on land that still has some constraints (including residual voids), provided that the constraints are known, managed and outweighed by the economic value of the land use after mining.

Turning to the Queensland case study, this paper will examine (from a planning perspective) some of the key obstacles that have prevented mining leases from being surrendered and the land converted to economically valuable post-mining land uses during the period of 17 years since the environmental administration of mining was transferred from Queensland’s Mines

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<sup>1</sup> A version of this paper was originally presented on 14 September 2017 for the Planning Institute of Australia (Queensland) annual conference held in Bundaberg. The paper was entitled: Planning for Post-Mining Land Uses. By kind permission of the Planning Institute of Australia, the original version was then updated and appendices added, with funding from the Australian Coal Association Research Program, contracted through the University of Queensland. In particular, it was then substantially updated to take account of the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*, which is expected to have been enacted by the date of presentation to the Queensland Environmental Law Association annual conference in May 2018.

Minister to its Environment Minister. There are additional issues to be resolved about lack of certainty and transparency regarding ongoing constraints, which were particularly highlighted by the Queensland Supreme Court in *Butler v The State of Queensland*,<sup>2</sup> relating to an historic underground colliery at Collingwood Park at Ipswich (known as the ‘Collingwood Park case’), where the land had been mistakenly converted to low density residential development and subsequently experienced subsidence. This case was then cited in a landmark report issued by the Queensland Audit Office in 2014, *Environmental regulation of the resources and waste industries*, which made a series of adverse findings about the regulation and administration of mine rehabilitation in Queensland.

Arising from the recommendations of the Queensland Auditor-General in 2014, a series of discussion papers were published during 2017, followed by the introduction of the *Mineral and Energy Resources (Financial Provisioning) Bill* to the Queensland Parliament on 25 October 2017, and then re-introduced on 15 February 2018 (having lapsed in the meantime upon a writ having issued for a State election on 29 October 2017). Further papers and legislative amendments have been proposed to follow. In 2017, the Queensland Auditor-General issued a report entitled *Follow-up of Report 15: 2013–14 Environmental regulation of the resources and waste industries* (Report 1: 2017-18) indicating satisfaction that the departments criticised in the previous report had ‘gone to considerable effort and implemented most of our recommendations’.<sup>3</sup>

## 2. Summary of key lessons

The key messages to be examined are:

- In practice, successful and sustainable post-mining land uses around the world have been driven by economics.
- The return of land to safe, stable, non-polluting landforms with economically productive land uses is in the interests of landowners and local communities.
- Continuing human presence for economically productive land uses also provides the strongest motivation for post-closure site integrity.
- From the perspective of the mining industry, key commercial drivers are to reduce (and ultimately remove) liability and ongoing cost, generally the sooner the better, subject to any ongoing operational requirements.
- Transparency – A convenient searchable system is needed so future landowners and government agencies know about any constraints.
- Post-relinquishment land use and management are the business of landowners and developers, planners, local governments and State government departments administering planning.<sup>4</sup>

## 3. A snapshot of some successful case studies around the world

Some examples of successful post-mining land uses around the world are briefly outlined here. This is only a snapshot of the variety available. Many more examples are provided in publications such as Pearman, *101 Things to do with a Hole in the Ground* (2009).

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<sup>2</sup> [2014] 2 Qd R 423.

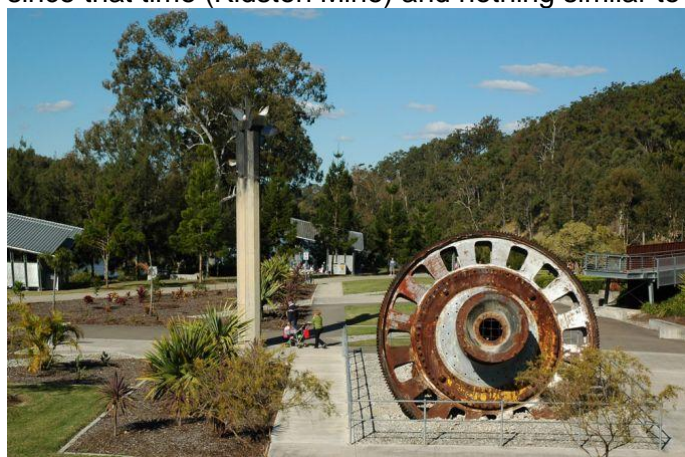
<sup>3</sup> Page 4, Audit conclusions.

<sup>4</sup> An issue to be outlined later in this paper is that, in Queensland, the assessment, approvals and rehabilitation regime for mining and petroleum is separate from the regulatory and administrative regime for other land uses, so historically planners have generally not worked in the same space as either the regulators responsible for mine rehabilitation or mining company personnel specialising in rehabilitation and environmental management.

### **Example 1 - Rocks Riverside Park, Seventeen Mile Rocks**

Although the Brisbane City Council website does not mention it, Rocks Riverside Park was historically mining lease land, held by Queensland Cement & Lime. The authors interviewed a former employee of the company who was involved in the rehabilitation project, who noted that the company had already removed mine and processing plant from the site when the local government asked the company to return a selection of items, so that these could feature as industrial heritage. Among other awards, Brisbane City Council received a Year of the Built Environment Award from the Australian Institute of Project Management in 2003 (Tupicoff 2004). Other parts of QCL's freehold land were converted to residential and light industrial land.

This mining lease was surrendered while Queensland's Minister for Mines was still responsible for the environmental management of mining in Queensland, before this jurisdiction was transferred to the Minister for Environment on 1 January 2001, by gazettal of Administrative Arrangements that accompanied the *Environmental Protection and Other Legislation Amendment Act 2000* (Qld). There has only been one surrender of a large mine in Queensland since that time (Kidston Mine) and nothing similar to the Rocks Riverside Park redevelopment.

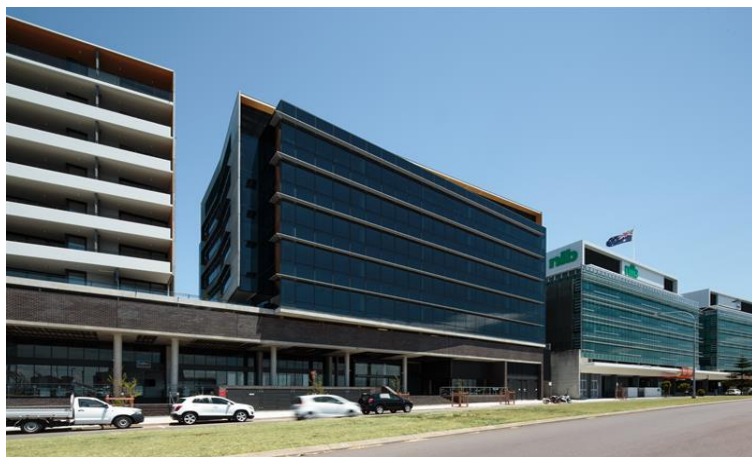


### **Example 2 – Hunter Development Corporation's Honeysuckle mixed use development, Newcastle, NSW**

This land used to be a series of underground coal mines in the 1880s, known as the Delta collieries. Later, parts of the land were used for warehousing and railway workshops but became derelict. The Hunter Development Corporation is a NSW government-owned corporation created in 1992, which has invested in rehabilitation, including backfilling.<sup>5</sup> The cost is recovered through the capital gain arising from the redevelopment.

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<sup>5</sup> <http://www.hdc.nsw.gov.au/honeysuckle>



This site is referenced in Queensland's Collingwood Park case (discussed in further detail later in this paper), where the Supreme Court contrasted Collingwood Park with the Honeysuckle site (called the 'tax office' site in the case, because at that time the Australian Taxation Office was proposing to relocate there): *Butler v The State of Queensland*.<sup>6</sup> In summary, the Court found that in Newcastle, it was cost-effective to backfill subsided underground colliery land because the land was vacant and well-located for redevelopment. This contrasted with Collingwood Park which was not vacant land and had already been developed for low-density affordable housing; in addition, the mining at Collingwood Park had been at a deeper level than in Newcastle. The Court found that it would not have been reasonable for the Collingwood Park land to have been backfilled, in contrast to the Newcastle land.

A lesson from these contrasting examples is that the extent of rehabilitation work that can reasonably be described as 'cost-prohibitive' is dependent on both site-specific constraints and the ultimate potential for capital gain. In turn, this is often likely to be dependent on mine location relative to existing urban development or other attractions. Another lesson from the Newcastle case study is that the opportunities for redevelopment may change significantly over time, partly as a result of changes in the surrounding neighbourhood and partly as a result of advances in technology. It is a mistake to describe the planned post-mining land use identified during or before mine operations as the 'final land use' (as has been done in many EIS documents, assessment reports and conditions).

**Example 3 –South Korea's Kangwon Land tourist resort, Gangwon Province, by Mireco – golf course, casino, hotels, multi-sport complex, ski resort with 18 slopes, theme park, cinema and high-rise residential apartments.**

In South Korea, the Kangwon site is similar to Honeysuckle in NSW, but on a larger scale. A casino is surely the ideal post-mining land use to make a capital gain out of rehabilitating mined land, from the perspective of revenue-hungry governments. Mireco was originally established by the South Korean government to redevelop a former coal mining area and has now been so successful that it has become an international services corporation, redeveloping former mining land in other countries.

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<sup>6</sup> [2014] 2 Qd R 423.

This has been such a successful model that Mireco has been reported to make about \$89 million per annum from its mine rehabilitation industry in South Korea alone, leaving aside what it is now making in other countries.<sup>7</sup>

#### **Example 4 – Rio Tinto’s Coal and Allied Mine, Upper Hunter Valley, NSW – Rehabilitated for cropping**

There are many places where agricultural cropping was the pre-mining land use and the post-mining land use, most of them in the USA but also in Australia. The Coal & Allied Mine was developed on farming land. As a condition of development consent, it was required to reinstate 65 ha of land to Class 1 or 2 lands suitable for irrigated cropping, with the balance for dry land farming. The performance standard was that Coal & Allied was required to produce Lucerne hay with a productivity yield equivalent to the average crop productivity yields for the Upper Hunter Region for three consecutive yields. Since this was an upfront condition, it was possible for mine planning to accommodate the necessary work from the beginning, including mapping of soil profiles and separate stockpiling of topsoil and subsoil, followed by backfilling to the correct depths, so as to accommodate crops with deep roots such as Lucerne. In 2007, a trial area had successfully demonstrated higher than average yields for 3 consecutive years. After that, Coal & Allied was ready to invite competitive tenders from local farmers for commercial cropping in 2010, and local farmer Peter Nichols was successful and has subsequently planted and harvested various crops. Coal & Allied won the New South Wales Minerals Council 2010 Environment and Community Excellence Award.<sup>8</sup>

This example and similar American and Canadian examples challenge outdated assumptions about the incompatibility of open-cut mining with rehabilitation for cropping purposes, underpinning legislation such as Queensland’s (repealed) *Strategic Cropping Land Act 2011* (now subsumed within the *Regional Planning Interests Act 2014*). Note that this is different from the position where an older mine was not originally required to manage its topsoil so as to restore land for cropping purposes, in which case, it is obviously too late after the topsoil has already been lost or dispersed to be able to restore for cropping purposes.



Another example of cropping as post-mining land use in Australia is at the Northparkes Mine, near Parkes in NSW.

<sup>7</sup> Kim Da-ye, *Economics of mine reclamation - Korea aims for share in potentially huge market*, 2013.

<sup>8</sup> Minerals Council of Australia, *Mine Rehabilitation in the Australian minerals industry* (2016).



**Example 5 – Erlebnisbergwerk Sondershausen, Germany –**  
**Former salt mine and potash mine converted to an underground adventure and sports park, with the world’s deepest standard bowling alley, world’s deepest concert venue, ballroom, boat ride on underground lake, adventure tunnel slide and museum.**

A classic example of how it can often be much more innovative, attractive and commercially valuable to leave holes in the ground exactly where they are, is this example from Germany. Stabilising work has been undertaken to ensure underground safety. Part of this site is still an operating mine.



**Example 6 – Wine!**

There are two enormous underground wine cities in Moldova in former mines. The wine cellar depicted below is housed in a former underground limestone mine in Cricova, Moldova and has 120km of underground labyrinths. It has constant 90% humidity and temperatures of 12-14°C. This has become a major tourist attraction. Vladimir Putin celebrated his 50<sup>th</sup> birthday in this venue and Angela Merkel is reported to be a frequent visitor.<sup>9</sup>



A contrasting wine example is in the Czech Republic, which has vineyards on former lignite mining sites at Most, Bohemia. This has also been turned into a tourist attraction, as visitors are taken on a tour firstly of operating coal mines and then of vineyards planted on rehabilitated mine land.<sup>10</sup>

<sup>9</sup> Hannon, M. A Tour Through Putin’s Wine Cellar, 12 January 2017.

<sup>10</sup> <http://www.czechtourism.com/p/uk-travelove-the-forgotten-treasures-of-north-bohemia/>



### Example 7 – Cattle grazing

If the pre-mining land use was grazing and the neighbourhood is still a grazing neighbourhood at the end of the mine's life, the normal local community expectation is that the post-mining land use ought to be grazing, or at least, primarily grazing. In Queensland, this legitimate community expectation is often evidenced in planning schemes, where the land continues to be mapped as Rural, notwithstanding overlay mapping indicating current mining tenements.

In Queensland, before the environmental management of mines was transferred from the Mines Minister to the Environment Minister, it used to be standard for mining lease conditions to require, 'as nearly as may be', that the land must be rehabilitated for the same land use as it was pre-mining. Upon the commencement of the *Environmental Protection and Other Legislation Amendment Act 2000 (No. 2) 2000* on 1 January 2001, existing mines were deemed to hold transitional environmental authorities (mining activities) and the deemed conditions included the old special conditions about rehabilitation taken from their mining leases. In most cases, grazing remains the primary post-mining land use identified in environmental authority conditions for those older mines or parts of mines, unlike the normal position for more recent mines or extensions.

Many central Queensland coal mines also agist or lease part of their land to neighbours for grazing, either while waiting for those areas to be disturbed for mining, or if they are buffer areas, or where they have been progressively rehabilitated for grazing.

Below is an example of cattle grazing on a rehabilitated spoil heap at Pit 25 East, at the Dawson coal mine complex in central Queensland. The mine worked in partnership with a local grazier, to trial a rehabilitated spoil area of 165 ha together with a control paddock nearby of 161ha. The rehabilitated area had first been graded to a 1 in 6 grade, access tracks were added, a dam was retained, topsoil was spread and the area was seeded. Cattle were weighed on a quarterly basis to track progress and their health was monitored. Average weight gain is between 0.8kg/day to 1kg/day for the 49 weaners in the rehabilitated paddock.



Other examples of successful rehabilitation of land for pasture in Australia include: Peabody's Wilkie Creek (discussed further on page 44 as a case study for 'mock' progressive rehabilitation certification to assist the Queensland DES with developing guidelines to improve its procedures), Commodore Mine (Intergen/Downer on the Darling Downs in Queensland), Liddell Coal (Upper Hunter Valley, NSW) and Wilpinjong Coal Mine (Peabody, Mudgee, NSW – partly pasture and partly woodland).

#### 4. Post-relinquishment constraints

The very nature of mining is that it unavoidably leaves land in a different condition from when it started. As a bare minimum and in the simplest possible terms, if a mineral is extracted from the ground, transported away and sold, there is logically going to be a space where that resource used to be. Complete backfilling of voids is normally not a common sense rehabilitation option, although considerable landform re-shaping and partial backfilling is common and even complete backfilling can be an option in some limited circumstances. As discussed above (case study 2 on page 3) in the context of the Queensland Supreme Court's analysis of the contrast between the Newcastle Honeysuckle site and the Collingwood Park low-density residential site, sometimes significant backfilling can be justified if there is a sufficient capital gain to be made from the redevelopment and depending on site-specific constraints and opportunities, but otherwise not.<sup>11</sup> As noted by the Minerals Council of Australia (MCA), *'it may be easier to undertake backfilling where there are multiple voids available during operation (eg, mining from one pit and depositing in another close by) and more difficult and costly to backfill a single void.'*<sup>12</sup> This underscores the basic point that economically productive post-mining land uses help to manage risks better than relinquishment criteria alone.

As a simple matter of logic, importing a large quantity of fill from another location impacts on the place from which such a large amount of fill is being imported (such as a quarry), which then leaves another void that needs to be filled, *ad infinitum*. Open-cut mining is not the only example of this. Backfilling requirements may also lead to perverse unintended environmental consequences, such as further vegetation clearing to obtain fill material nearby, or traffic and transport impacts if such large quantities of fill have to be obtained from further away. Similarly, some degree of planned subsidence is a normal consequence of underground coal mining.

Frequently, the position argued by anti-mining non-government organisations is that all voids should be completely backfilled, for example, the recent submission by the Australian NGO, Lock the Gate Alliance Ltd (April 2017) to an Australian Senate Committee Inquiry on *Rehabilitation of mining and resources projects as it relates to Commonwealth responsibilities* (July 2017). This was also the position argued by the Environmental Defender's Office in its submission to the Economics and Governance Committee on the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*, at page 3, which argued that American legislation, the Surface Mining and Reclamation Act 1977 is better than the position in Australia, in part because it requires restoration to the original landform contour. However, that argument has not kept up with recent criticism of the 'exact replication' approach that the American legislation tried to impose. For example, as pointed out by Brenda Schladweiler:<sup>13</sup> *'Despite the fact that slope*

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<sup>11</sup> Note that backfilling of underground coal workings is quite different from backfilling open-cut mines, and also there is a significant difference between a situation where backfilling has been planned from the outset of a project (for example, so that topsoil has been profiled and stored) compared with backfilling an older operation that was never intended to be backfilled. When an underground mine is backfilled with spent ore, this normally means that underground cavities are filled to prevent further subsidence, but still leaving a surface depression where subsidence has already occurred. Backfilling open-cut mines is different. Many mines have on-site quarries because further material is required, but this means that the quarry voids are left. However, at other open-cut mines, when the overburden has been extracted, it bulks up because it has been broken up and is consequently less dense than the intact rock, which would lead to mounding if all of the material was to be placed back in the void.

<sup>12</sup> Submission to the Senate Inquiry into the Rehabilitation of Mining and Resources Projects as it relates to Commonwealth Responsibilities' (28 April 2017).

<sup>13</sup> Schladweiler, BK, '40 years of the Surface Mining Control and Reclamation Act (SMCRA): what have we learned in the State of Wyoming' (January 2018).

*configurations of 5:1 were more desirable in high rainfall climates, these less steep slopes were established in semi-arid/arid areas. Remnant high walls or scarps could not generally be left, even if they were suitable habitat for many raptors.*<sup>14</sup>

There is helpful guidance that has previously been published by the Australian Government about the difference between ‘rehabilitation’ of mined land and ‘restoration’, set out in the *Leading Practice guideline - Sustainable Development Program for the Mining Industry* (September 2016). The Guideline contrasts the term ‘restoration’ (that is, an attempt to re-create the land to the same condition as it was in pre-mining) with ‘rehabilitation’ which should be understood in the context of an accepted post-mining land use which may be different from the pre-mining land use.<sup>15</sup> The Australian Government’s leading practice guidelines have been well-recognised internationally and have already been translated into 8 languages for use in a range of developing countries.

As explained by Brenda Schladweiler in her critical review of the ‘broad-brush approach’ that had been taken by the 1977 American SMCRA legislation (that is so preferred by Australian NGOs), ‘*The one-size-fits-all mentality is often engrained in regulation simply as a result of the process. Complex problems deserve complex solutions and a regulatory framework that can adapt to finding those solutions.*’ The American legislation was originally intended to deal with coal mines in one part of the United States (having been derived from earlier similar regulation in Wyoming). It was less well-adapted to other regions.

This does not necessarily mean that post-mining land uses cannot be just as valuable, or even more valuable, than pre-mining land uses, but merely that it would be illogical to start from a presumption that the landform itself should normally end up exactly the same as before the commencement of mining, unless, in the particular circumstances, there is a greater benefit than cost in creating a corresponding impact on other land when importing fill from elsewhere. Other common examples of post-mining constraints include fences that should be maintained, or slopes that may be subject to erosion depending on how they are managed in the future, for example, if they were to be over-grazed.

The fact that the landform changes with mining is the same as for many other land uses such as quarrying, landfills and a variety of major public infrastructure. Also, the fact that there are often likely to be some remaining constraints on the land after rehabilitation, which do not prevent the land from being valuable for another use, is not a unique feature of rehabilitated mine land. By way of analogy, it is normal for residential landowners to be constrained by an easement allowing a neighbour’s drainage or sewerage pipeline to traverse the property. This is an example of an ordinary constraint that is far from being unmanageable. In terms of normal commercial practice, what matters when potential purchasers are considering whether to buy land is firstly whether the value of the land outweighs the constraint and secondly that the constraint can easily be searched and understood.

Although the total area of land disturbed by mining in Australia is only a tiny proportion of Australia’s total land mass (about 0.021%<sup>16</sup>), some mining leases (including undisturbed land) cover areas comparable with small European countries, and within such large areas it is normal that a variety of third party infrastructure and other development will co-exist with the mine, for example, pipelines, powerlines, grazing and other resource industries. Sometimes, these third

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<sup>14</sup> Section 1.2.2.

<sup>15</sup> Refer to Chapter 2.

<sup>16</sup> MCA, *The Whole Story – Mining’s contribution to the Australian community in numbers*, Canberra 2015.

party land uses may also operate as ongoing constraints on the land, particularly if the third party development is permanent (or longer term than the mining operation), but this should not prevent mining tenement relinquishment.

This paper is not about mines that have been abandoned without having been rehabilitated, carrying far greater risks than land that is rehabilitated for the purpose of relinquishment. (In Australia and other first-world jurisdictions today, the risk of abandonment without rehabilitation of disturbed land is a risk that is secured by various forms of financial instruments, such as insurance or bank guarantees, although that was often not the case historically). The scope of this paper is about facilitating conversion to successful post-mining land uses where the land has been or is being rehabilitated in the normal way and a government agency is sufficiently satisfied with the outcomes that it is able to approve the surrender of the mining leases. It also examines the constraints affecting that facilitation.

## **5. Current obstacles to mining tenement relinquishment and conversion to productive post-mining land uses**

In Queensland, there has been only one example of approval of a normal application for surrender of rehabilitated land for a major mine (Kidston Mine) since the transfer of the environmental administration of mining from the Mines Minister to the Environment Minister on 1 January 2001. The Kidston surrender was granted only just after the transfer of government administration, so the process was already underway at that time.<sup>17</sup> Before the transfer of government administration, normal surrender processes were not uncommon. Seventeen Mile Rocks (case study 1 above) was an example of the normal historic process.

Why did mine surrenders stop happening in Queensland, while this process continued elsewhere around the world?

### **5.1 Environmental authority conditions, guideline and legislation discouraging economically productive post-mining land uses**

In Queensland, before the commencement of the *Environmental Protection and Other Legislation Amendment Act (No. 2) 2000* on 1 January 2001, conditions about rehabilitation of mined land used to be set out in mining leases and more detailed commitments used to be set out in plans prepared by the mining company and accepted by the Mines Minister, known as 'environmental management overview strategies' (EMOSs). The mining lease conditions and EMOS provisions typically used to require that the land should be restored 'as nearly as may be' to its pre-mining use and state, unless otherwise determined by the Minister (or, in some mining lease conditions, the Governor-in-Council). In central Queensland, in effect, this normally meant returning the land to cattle grazing. From 1 January 2001, the rehabilitation conditions of the mining lease and the EMOS commitments were deemed to have become conditions of the mine's environmental authority and the rehabilitation conditions were taken to have been deleted from the mining lease.<sup>18</sup> Provided that older mines have continued to preserve their original conditions since then, they are still able to rehabilitate primarily for pre-existing land uses such as grazing.

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<sup>17</sup> Note that this paper is not suggesting that the assessment of the surrender for the Kidston Gold Mine was a particularly 'successful' example of major mine surrender, but only the most recent. Refer to Edraki, Baumgartl, Mulligan, Fegan and Munawar (2017) in relation to mine seepage issues.

<sup>18</sup> Section 587 (as it is now) of the *Environmental Protection Act 1994* (Qld).

However, most of the land in more recent projects is not currently being rehabilitated for economically productive post-mining land uses. To understand why not, the typical conditions that have been imposed by the Queensland Department of Environment and Science (DES)<sup>19</sup> on many environmental authorities for mines need to be examined. Land that used to be grazing land, forestry, orchards or cropping land pre-mining has, more often than not, been required to be transformed into 'self-sustaining natural vegetation or habitat' post-mining. This is despite the fact that the majority of mined land in Queensland is freehold land, or, where it is government land, it was normally either leased for grazing purposes or State Forest land.

Below is an extract from a table found in typical conditions of an environmental authority for a coal mine in central Queensland, imposed during the last decade:

Objectives	Indicators	Completion criteria
Establish self-sustaining natural vegetation or habitat	Abundance and diversity of native plant species	Certification by appropriately qualified person that plants in rehabilitated areas show evidence of flowering, seed setting and seed germination.
	Abundance and diversity of native fauna species	Certification by appropriately qualified person that native fauna species identified in pre-mining baseline studies and the 5 years of reference site monitoring prior to completion of rehabilitation are present or indicators or these species or habitat elements are developing within the rehabilitated areas.

These types of conditions have been derived from the current relevant Queensland *Guideline - Rehabilitation requirements for mining resource activities*,<sup>20</sup> which has, for many years, actively discouraged rehabilitation that would create an economic value. The following is the relevant hierarchy for determining post-mining land uses in that Guideline:

## **2.2. Rehabilitation hierarchy**

*In assessing the acceptability of rehabilitation objectives, indicators and completion criteria that may be proposed for a mining project, the administering authority will have regard to a hierarchy for mine rehabilitation that is similar to the waste hierarchy. The strategies listed higher in the hierarchy should be adopted in preference to those listed lower, unless there are significant environmental, economic or social issues that override such a selection. The rehabilitation hierarchy, in order of decreasing capacity to prevent or minimise environmental harm, is:*

*1. avoid disturbance that will require rehabilitation*

**2. reinstate a "natural" ecosystem as similar as possible to the original ecosystem**

<sup>19</sup> Note: Until December 2017, this Department was known as the Department of Environment and Heritage Protection, so many of the reports or other documents cited in this paper refer to this former name or the abbreviation 'EHP'. The Department has also had many other former names.

<sup>20</sup> Available at <https://www.ehp.qld.gov.au/land/mining/guidelines.html>

3. develop an alternative outcome with a higher economic value than the previous land use

4. reinstate previous land use (e.g. grazing or cropping)

5. develop lower value land use

6. leave the site in an unusable condition or with a potential to generate future pollution or adversely affect environmental values.

*In determining whether it is feasible to achieve levels in the top half of the hierarchy, the applicant and the administering authority should consider the pre-mining land use, any compensation or other agreements regarding the land, the potential uses of likely rehabilitated landforms and existing use or environmental values of surrounding land. Developing a lower value use may be acceptable if that use is acceptable to the relevant stakeholders and all higher strategies are impractical. Leaving the site in an unstable condition or with potential to cause environmental harm will rarely be acceptable.*

*In general there is a higher risk of future environmental harm after the mine closes if the strategies listed lower in the hierarchy are adopted. However a “lower value” land use may be more sustainable in terms of preventing off-site impacts, especially if the post-mining land use makes an economic return that is sufficient to maintain the rehabilitation. To manage a site so that the potential for on-going environmental harm is kept to acceptable levels, future monitoring and maintenance may be required. For this reason, the acceptance of a rehabilitation strategy involving outcomes lower in the hierarchy may mean that, when progressive or final rehabilitation is assessed, the company may have to make larger payments to cover the remaining residual risk.’*

Assuming that a mining project does tend to involve some disturbance of land in the first place, which would logically be the case or there would never have been a need for rehabilitation, the next line in the hierarchy above is to ‘*reinstate a “natural” ecosystem as similar as possible to the original ecosystem*’. Reinstating the land to the previous use, such as grazing, is far down the hierarchy at no. 4 and is described as a ‘lower value’. In order to demonstrate that this lower order use is acceptable, it is necessary to demonstrate *significant environmental, economic or social issues that override the natural ecosystem requirement*. All higher strategies need to have been proven to be impractical. Also, in the last line, the mining company is warned that if it does not conform to the hierarchy rules, there is a higher residual risk payment to the government upon relinquishment.

Similarly, in the current provisions about calculating a residual risk payment upon surrender, the *Environmental Protection Act 1994 (Qld)* itself currently still betrays the Queensland bias against economically productive post-mining land uses by requiring a component to ‘*reinstate rehabilitation that fails to establish a safe, stable and self-sustaining ecosystem*’.<sup>21</sup> This means that the legislation itself fails to acknowledge that a valid outcome of rehabilitation might be concrete hardstand for an industrial post-mining land use, a building such as a casino, or an innovative post-mining land use of a ‘hole in the ground’ such as a velodrome. This has not been corrected by the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*.

<sup>21</sup> Section 272(b) *Environmental Protection Act 1994 (Qld)*.



## 5.2 Early rehabilitation currently does not convert to an early ability to surrender and reduce/remove liability for the mining company

Among the many criticisms of the Queensland Government's administration of rehabilitation, the Queensland Audit Office Report of 2014, *Environmental regulation of the resources and waste industries*<sup>22</sup> noted:

*'EHP advised that many of the level 1 sites would require up to 50 years of post-rehabilitation monitoring for successful rehabilitation before EHP can approve the surrender of the relevant environmental authority and return of financial assurance. It is unlikely that the government, operators and the public were aware of this and the costs associated with the ongoing regulation of these sites.'*

This is beyond the lifetime of all planning schemes and regional plans. It is beyond the lifetimes of shareholders and managers. In particular, it would appear to be a counter-productively long time to be monitoring the self-sustaining native ecosystems before selling the freehold to a neighbouring grazier, who would not normally have an economic interest in preserving the land in that condition.

It is also not readily apparent why there would be a commercial incentive for shareholders to invest in early rehabilitation if they then have to expect to wait 50 years to receive all the benefits of doing that, such as reducing or removing liability and receiving payment for the sale of the freehold land by a purchaser.

## 5.3 Other current obstacles

There have been many workshops in Australia and overseas considering policy obstacles to rehabilitation and a particularly thorough example was Pershke (2017). Leaving aside the key issues discussed above relating to delays in achieving relinquishment and an associated end-point for company liability, some other current potential obstacles preventing mines from achieving a desired relinquishment, which could vary in their significance from project to project, may include:

- (a) Over-reliance on the closure planning process operated by one government agency, when what is needed is a 'whole-of-government' approach to post-mining land use assessment;
- (b) Gaps in regulation for the transition of various items of permanent infrastructure (such as dams) from mining operation to post-mining land use, or inconsistent regulation;
- (c) The fact that land use planning is 'not core business' for either mining companies or their regulators;
- (d) The procedural difficulty of obtaining necessary and appropriate changes to existing approvals to facilitate more productive post-mining land uses, or to adopt more recent technological advances in rehabilitation engineering;
- (e) Lack of mechanisms to deal with management of ongoing constraints, including constraints from co-existing land uses and infrastructure that will remain;
- (f) Lack of expertise in the assessment process;
- (g) Ambiguity or 'shifting goal posts' in relation to the standards to be achieved;
- (h) Overly risk-averse behaviour of regulators in line agencies that do not directly benefit from the return of mined land to economically productive post-mining land uses;
- (i) Unnecessary complexity and cost of the process itself.

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<sup>22</sup> Page 47.

#### 5.4 Challenging some assumptions about the universal desirability of earlier rehabilitation and relinquishment

However, before going on to address how mining companies can be incentivised to rehabilitate sooner, so that land can be converted to productive post-mining land uses sooner, it should first be explained that there are many ordinary circumstances in which 'sooner' is not the same as 'better'. Also, a 'widening gap' between the area of land subject to mining disturbance and the area that has been rehabilitated is not necessarily against the public interest, contrary to some sweeping assumptions contained in the series of Queensland discussion papers about mined land rehabilitation issued in 2017. The *Discussion Paper: Better Mine Rehabilitation for Queensland* (May 2017) identifies in its executive summary the key concern that the Queensland Government:

*'...the QTC Review found a widening gap between the amount of land disturbed by mining and the amount of land rehabilitated. Current estimates indicate that only approximately 9 per cent of disturbed land has been rehabilitated. Reporting by mining companies indicates that, by 2021, the area of disturbed land will be approximately 12 times greater than areas under rehabilitation. By comparison, in 2006, the area of disturbed land was only three times greater than areas under rehabilitation.'*<sup>23</sup>

Based on this analysis, the Discussion Paper concluded that it should be a policy objective to halt *'the increase in the cumulative area of land that is un-rehabilitated or rehabilitated incompletely, and start the process of decreasing the cumulative area'*.<sup>24</sup> The 'QTC Review' referred to in the *Discussion Paper* was part of the *Review of Queensland's Financial Assurance Framework* (April 2017), and the calculation was apparently based on plans of operations submitted by mining companies in 2006 and 2016 and there were some issues with that methodology.<sup>25</sup> However, leaving that aside, a more important consideration is that an increased area of disturbance can logically be expected during the period shortly after the granting of a series of project approvals for new mines or mine expansions. In the context of a boom in commodity prices and also the encouragement of mine development in Queensland by successive State governments, Queensland experienced a sustained period of intensive granting of new project approvals and expansion approvals approximately from 2004 until the beginning of 2015. Former Queensland Labor Premier Anna Bligh frequently referred to the mining industry as having 'overheated' for the period covering her own term as Premier and that of her Labor predecessor, Peter Beattie.<sup>26</sup> A rapid increase in mining disturbance can be expected immediately following the grant of new approvals, which in turn could reasonably be expected in circumstances including the following:

- High commodity prices;
- High business confidence and low concerns about sovereign risk;
- After having invested in exploration that has yielded successful results;

<sup>23</sup> *Discussion Paper: Better Mine Rehabilitation for Queensland* (May 2017) Page 5.

<sup>24</sup> Page 12.

<sup>25</sup> Page 10. Plans of operations have been required to be submitted in Queensland prior to carrying out activities on mining leases; consequently these figures do not include rehabilitation of mining leases that have already been surrendered (before the transfer of environmental jurisdiction for the mining industry from the Mines Minister to the Environment Minister on 1 January 2001). Plans of operations are also only required in order to carry out mining activities, not where a site is inactive: Section 287 *Environmental Protection Act 1994 (Qld)*.

<sup>26</sup> For example, <https://www.finda.com.au/news/premier-fast-tracks-spending-to-ease-mine-downturn/154453/>

- After a new region has been opened up to mining or after a new commodity has been introduced to the mix.

A government that is granting a high rate of project approvals might reasonably be expected to do so in the hope of job creation, increased royalties and increased prosperity for the State. These factors would not necessarily be perceived as bad news in terms of the mainstream public interest or the Queensland Treasury interest, although these factors may be perceived as unfortunate by anti-mining activists.

After a short period of reduced commodity prices, during which many Queensland mines temporarily closed, commodity prices then recovered for a range of commodities relevant to the Queensland mining industry. The next major region that has previously been identified by the Queensland Government as likely to be opened up to mining is the Galilee Basin, starting with Adani's Carmichael Coal Project. If not only the Adani project proceeds but the entire basin opens up, the total area of mining disturbance in the State would be likely to undergo another period of rapid and significant expansion. Mine workers in central and north Queensland who lost employment during the downturn, and the regional communities that indirectly benefit from mining, would not necessarily view this increased mining disturbance as a problem, although it would be likely to lead to an even wider 'gap' than at present, while this new region is being developed, even if the rate of rehabilitation in other parts of the State doubles or trebles during the same period.

This is why the use of raw statistics from current operating mines to make an adverse assumption about a 'widening gap' can inadvertently lead to poor policy development, even where the intention is honourable. Particularly if the converse of a widening gap is used as benchmark for government achievement of 'reform' in the future (ie, 'narrowing the gap') this would be unlikely to represent a helpful KPI for government or industry 'success'. Opening up a new region to mining and associated infrastructure at the same time as judging the success of its rehabilitation policy by raw figures about a widening or narrowing gap, would be likely to set up the government and the industry for perceived 'failure', quite unnecessarily.

It is also not necessarily the case that land should be fully progressively rehabilitated as soon as it becomes 'available', or that if it is rehabilitated, relinquishment should immediately occur.

Examples include:

- (a) The need for operational flexibility to switch operations from mining area to mining area within the same mine

It is not unusual for a large mining complex to comprise a series of mining areas, with different constraints (including technical and infrastructure constraints) and different quality of the resource, or even more than one mineral the subject of a mining lease. Historically, it has been a competitive advantage in Queensland, compared with some other jurisdictions, that there has been flexibility for companies to make quick commercial and technical operational decisions to switch their focus from one mining area to another in response to a wide range of possible changes in circumstances and then switch back, subject only to making changes to a plan of operations (which may only take 28 days) and any associated changes to financial assurance.

For example, following largescale flooding in early 2011, many central Queensland mines had to use one or more pits to store floodwater, while switching operations to other pits within the same mine, then re-opening the flooded pits after the floodwater had been removed some years later. This was a situation where unnecessary constraints imposed by Queensland's environmental regulator in standard environmental authority conditions during 2009 meant that

*'environmental authorities were not sufficient for mines to deal with the water entering their sites during the 2010/11 wet season'.<sup>27</sup>*

Commercial decisions to switch focus from one mining area to another are more likely to be in response to trade conditions, improvements in technology or commodity prices or both, making it feasible to mine resources that were previously considered not commercially feasible.

Mineral reserves that are economically viable for extraction will not necessarily be extracted within ten years. A pit may have been started and then priorities will have moved elsewhere within the mine before returning to that pit.

Mine planning needs to be kept flexible to adapt to these types of issues. Unfortunately, as discussed at page 24 of this paper, the rigid transitional provisions and amendment provisions for the new system of 'PRC Plans', proposed to be introduced by Queensland's *Mineral and Energy Resources (Financial Provisioning) Bill 2018*, will significantly detract from this existing flexibility in Queensland.

*(b) Re-mining*

Re-mining may involve extracting additional ores that were previously thought to be uneconomic, or there may be a different mineral still remaining to be extracted which was not previously in demand. There have been many instances where improvements in processing technology have meant that old spoil dumps could be reprocessed using a more effective recovery method than was known to a previous generation.

A famous example was the East Rand Gold and Uranium Mining operation in South Africa, near Johannesburg, which was historically a series of gold mine workings dating back to the 19<sup>th</sup> century. Reprocessing was commenced by Ergo in 1977 to recover not only gold, but also uranium. This operation was originally expected to take no more than 15 years. However, just as the plant was about to be demolished, a joint venture between DRDgold and Australian company Mintails identified that technology enabling more efficient extraction of gold, combined with economies of scale, would mean that the waste that had already been reprocessed once was able to be reprocessed again, extending the life of the mine for potentially another 25 years. In the mid-20<sup>th</sup> century, presumably anyone with relevant expertise would have been able to assess that the waste dumps still contained gold and uranium, but would not have been able to predict the developments in technology that would lead to reprocessing and re-reprocessing, or the periods of time that would be involved. A detailed mine plan with fixed dates would not have been possible.

Similarly, Scotgold Resources Limited has recently received planning permission from Loch Lomond and Trossachs National Park Authority to re-open the Cononish underground gold mine lying beneath the village of Tyndrum, within a national park, with landowner and local community support and notwithstanding an objection from Mountaineering Scotland, after more than 30 years.<sup>28</sup>

<sup>27</sup> Queensland Floods Commission of Inquiry Final Report page 359.

<sup>28</sup> <http://www.proactiveinvestors.co.uk/companies/news/192762/scotgolds-richard-gray-upbeat-as-planning-granted-for-cononish-gold-mine-development-192762.html>

Alba Mineral Resources is planning to re-open the Clogau Gold Mine in Wales in 2018, after it had been closed in 1998. Welsh gold attracts up to five times the price of the spot price for gold, due to its sentimental value and heritage connection, particularly as many British royal items have been created from Clogau gold, and this is seen as a relevant factor in the feasibility of re-opening.<sup>29</sup>

(c) Examples where mining companies may prefer not to relinquish fully rehabilitated land

Examples of reasons why companies may reasonably choose not to surrender rehabilitated land at the earliest possible moment may include:

- The land is required for interim purposes related to other parts of the mine, such as to provide a buffer from sensitive places or for access to infrastructure;
- To gain greater confidence that risks have been managed, for example, by undertaking ongoing groundwater monitoring for a period of years post-rehabilitation.

However, just because rehabilitated land has not yet been surrendered does not mean that it cannot be used in the meantime for post-mining land uses (as evidenced by the Tyndrum example above). It is not unusual in Australia for rehabilitated land that is still subject to mining leases to be agisted or leased for purposes such as grazing or cropping.

## 6. What would incentivise mining companies to rehabilitate sooner?

A point made by Prof Bruce Harvey is that: *... 'extractive companies should unashamedly make clear that their motive for local engagement activities is self-interest, not altruism. If transparent self-interest is not at the core of public engagement, proposals will simply not be believed and mistrust will prevail.'*<sup>30</sup>

In summary, this could be described as shareholder value. Translating this point to the broader context of incentivizing mining companies to rehabilitate sooner, it is a common mistake for government agencies or their consultants<sup>31</sup> to assume that broad and general commitments contained in individual company policies or in resource industry organization policies about rehabilitation must mean that the companies are saying they have a pure altruistic interest in rehabilitation that would occur without regard to any differences between jurisdictions in relation to obstacles and incentives.

Anyone familiar with what motivates the average corporate board will not be surprised that shareholder value drives decision-making in the modern corporation: making money, reducing costs, closing out liability and moving on to the next project, all within project timeframes, are relevant to creating and maintaining shareholder value.

For example, mining companies can be incentivized by the ability to:

<sup>29</sup> <https://www.telegraph.co.uk/news/2018/01/01/welsh-gold-mine-behind-three-generations-royal-wedding-rings/>

<sup>30</sup> Harvey, BE, *The Eye of the Beholder – Utility and Beauty in Mine Closure*, page 21.

<sup>31</sup> An example where the Queensland Government referred to company and organizational commitments in this way was the QTC Financial Assurance Discussion Paper (May 2017) page 2.

- Remove or minimise contingent liability from company balance sheets.<sup>32</sup> Other stakeholders are often unaware of the commercial significance and valuation implications of accounting standards for contingent liability or provision for rehabilitation for mining companies, but there has been considerable analysis, including specifically in Australia.<sup>33</sup> The primary driver for this is to be able to relinquish and move on, within a reasonable period and in the context of clear and reviewable procedures. The topic of managing ongoing liability risks is explored in further detail later in this paper.
- Cease providing financial security (which may be upon having made a final residual risk payment, if there are residual risks).
- Achieve possible other cost reductions, such as through tax or rental systems.
- Make a capital gain upon sale of freehold land. (This is not currently a significant factor that has traditionally been taken into consideration in the Queensland mining context, but capital gains have been achieved elsewhere, as described in some of the case studies above.)

## 7. Recent steps in Queensland

Following the Auditor-General's report in 2014, the Queensland Government released a series of discussion papers during 2017,<sup>34</sup> including:

- (a) *A Review of Queensland's Financial Assurance Framework*, prepared by Queensland Treasury Corporation (April 2017);
- (b) *Financial Assurance Framework Reform Discussion Paper* (May 2017);
- (c) *Better Mine Rehabilitation for Queensland Discussion Paper*, prepared by EHP (May 2017).

This was followed by the announcement of the *Mined Land Rehabilitation Policy*,<sup>35</sup> and then introduction of the *Mineral and Energy Resources (Financial Provisioning) Bill* to the Queensland Parliament on 25 October 2017, re-introduced on 15 February 2018 (having lapsed in the meantime upon a writ having issued for a State election on 29 October 2017).<sup>36</sup>

Further papers and guidelines have been foreshadowed, discussed on page 23 of this paper and Appendix 6.

In contrast with the current position, the EHP Discussion Paper *Better Mine Rehabilitation for Queensland* proposed that:

- *'regional plans and local planning schemes contain valuable information about surrounding uses, values, opportunities and future vision for the land. Rehabilitation outcomes that conflict with these planning strategies are unlikely to constitute an appropriate post-mining use. Rehabilitation may include retaining built infrastructure,*

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<sup>32</sup> Australian Accounting Standard AASB 137 *Provisions, Contingent Liabilities and Contingent Assets* (as amended); note that entities that comply with AASB 137 as amended will simultaneously be in compliance with IAS 37 as amended.

<sup>33</sup> For example, Ferguson A and Walker A, *Restoration and rehabilitation provisions in the Australian materials and energy sectors; Estimation and valuation implications*, 2011, University of Technology, Sydney.

<sup>34</sup> All of these papers are available at <https://www.treasury.qld.gov.au/growing-queensland/improving-rehabilitation-financial-assurance-outcomes-resources-sector/better-mine-rehabilitation-queensland/>.

<sup>35</sup> Available at <https://www.ehp.qld.gov.au/management/env-policy-legislation/mining-rehabilitation-reforms.html>

<sup>36</sup> At the time of writing this paper, it is anticipated that the Bill is likely to have been passed, but not yet commenced, at the time of presenting this paper to the QELA annual conference in May 2018.



*such as roads, dams and buildings that will have ongoing value for the landholder or community.*<sup>37</sup>

- *'An amendment process will be available should the operator need to change the plan due to new rehabilitation methods becoming available, market variations or alternative land uses being identified.'*<sup>38</sup>

It was pleasing to see in these excerpts a dawning acknowledgement that:

- There may be more appropriate post-mining land uses than converting the land to natural vegetation and habitats;
- It might actually be worth looking at local planning instruments in that regard; and
- Local areas can change over the half-century lifetime of a mine, so planning for post-mining land uses might need to change too.

These were welcome steps in the right direction. Implementing these proposed changes would be important to all stakeholders with an interest in the land:

- For local communities and landowners, there is an interest in land being restored to productive land uses characteristic of the neighbourhood;
- For those government agencies that have an interest in achieving revenue from economically productive land uses and minimising liability (including local governments).
- For mining companies, in terms of minimising risk and liability post-relinquishment, as outlined above.

Of course, turning around what has happened in policy terms over the last 17 years is still going to be difficult. Also, the framework for fostering and managing this greater variety of post-mining land uses remains to be seen, for example, as noted above, the *Mineral and Energy Resources (Financial Provisioning) Bill 2018* did not change the current bias in the provisions about residual risk payments referring to reinstating '*rehabilitation that fails to establish a safe, stable and self-sustaining ecosystem*',<sup>39</sup> and the guideline imposing a hierarchy that is biased against economically productive post-mining land uses remains in place (page 8). However, it was a welcome start, as we demonstrate below.

An important point made by Harvey (2016) is that: '*what will most determine long-term success is a post-closure use that subsequent users really want and will take ownership of.*' In more detail, he has explained: '*Successful closure scenarios, even those based on environmental values, invariably involve a continuing human presence with economic returns...this continuing human presence provides the best motivation for, and monitoring of, post-closure integrity.*'<sup>40</sup>

In a nutshell, people will buy rehabilitated land if they can make money from it. If people buy land and make money from the land use, that commercial interest is the best guarantee for ensuring day-to-day careful management of the land, exactly the same as with countless redevelopments of former manufacturing land. The new landowner has a vested interest in protecting his or her property by monitoring for any residual environmental effects of the mining on the post-mining economic land uses.

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<sup>37</sup> At page 14.

<sup>38</sup> At page 17.

<sup>39</sup> Section 272(b) *Environmental Protection Act 1994 (Qld)*.

<sup>40</sup> At page 5.

Obviously, any risks of a catastrophic event (such as an earthquake), causing off-site damage, must be put to one side in this analysis. These are risks which can be covered by the mining company's residual risk payment to the government,<sup>41</sup> for the purpose of the government's insurance cover, which is a mechanism that has already worked successfully overseas, for example, in Canada and New Zealand.<sup>42</sup> (This is similar to the approach proposed to be adopted by the Queensland Government, as foreshadowed in its discussion papers in 2017.)

The points outlined above are steps forward. However, the intent of the Discussion Paper *Better Mine Rehabilitation for Queensland* has not been fully supported in the PRC Plan provisions of the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*, as will be explored further at pages 24-30 of this paper. Also, there is considerable further work to be done to overcome the other obstacles to rehabilitation of mined land, as summarized by the Pershke report. The next of those issues to be examined below relates to management of any ongoing constraints.

## 8. The Collingwood Park case

Collingwood Park is a residential suburb of the City of Ipswich, located near Redbank in south-east Queensland. A large proportion of the suburb is located on land that was previously an underground coal mining area. At the time that a relevant coal mining lease was granted in 1967, the land was owned by the Queensland Housing Commission (QHC), a government-owned public housing developer. QHC objected to the coal mine; conversely, when the land was later proposed to be rezoned and developed for residential purposes, the coal mining company (Westfalen) objected to residential development, stating: '*any residential development which was allowed upon the subject land could be deleteriously affected in the future by underground mining operations already conducted and to be conducted in future years.*'

Critically, when the local government proposed to rezone the land for residential redevelopment, the local government did not have details about the design of underground pillars relevant to subsidence, which was information that the State had, because the mine had provided accurate mine plans to the State and regular mine inspections had been by State officials. The State's mine subsidence report submitted to Council also did not inform Council of the risk. Rezoning in Queensland was a two-stage process, with the second stage being by the Governor-in-Council (ie, at State level).

Land that was developed for residential purposes was subject to major subsidence. The State set up a compensation scheme for residents within the subsidence area. Other residents, whose properties were located close to the subsidence, but not directly within the subsidence area, instituted proceedings in the Queensland Supreme Court. The case was *Butler v The State of Queensland*,<sup>43</sup> and it was heard in 2013.

The State contended, in its defence, that the residents could have taken steps to protect themselves, by making enquiries and searches and obtaining geotechnical reports. The State also sought to blame the local government. The Supreme Court did not accept those arguments. In relation to the local government, the Court held that '*local government entities make assessments as to the risk of subsidence to future buildings on that land based on the*

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<sup>41</sup> The term 'residual risk payment' is used loosely here. This could also be a component of financial provisioning, worked out 5 years before completion of extraction, as discussed in the KPMG report discussed later in this paper (starting at [page 32](#)).

<sup>42</sup> Case studies in jurisdictions such as New Zealand and Canada are provided in Bowden, Lane and Martin (2001).

<sup>43</sup> [2014] 2 Qd R 423.

*conditions imposed on any mining grant, having been properly supervised and enforced during mining operation. Local government entities have no way of ascertaining whether there has been compliance with the conditions, other than an acceptance the defendant [ie, the State] will have complied with its statutory obligations.'* [paragraphs 125 and 126]. In relation to the residents, while the Court noted that they could have undertaken searches showing the fact that there were historic mining leases or commissioned their own reports, there was no reasonable way that they could have obtained information on the 'crucial matters' known to the State about the underground pillar design. Consequently, the Court found that the State had a duty of care to vulnerable future landowners.

The Court found that the State's duty of care was not limited to the land actually the subject of the subsidence event, but that the foreseeable risk of economic loss extended to residents located nearby, provided that there was a sufficient relationship that the damage claimed was not too remote.

Interestingly, the Court also did not accept the residents' argument that, just because there was a duty of care, this automatically meant that the duty extended to remedial action. In particular, the Court did not accept that back filling would have been a reasonable rehabilitation option. The Court contrasted backfilling that had been undertaken in Newcastle, New South Wales (outlined in Example 2 on page 3 of this paper) with the situation at Collingwood Park, where the costs would have been 'astronomical' and consequently 'unreasonable' (paragraph [157]). As noted above, the underground mining at Collingwood Park was at a greater depth than in Newcastle, backfilling would have caused significantly greater disruption and redevelopment was for different purposes. One reason why this finding was of particular interest is that it has been frequently argued by anti-mining activist groups that backfilling should always be required,<sup>44</sup> which is not only illogical (as explained on page 8 of this paper) but also contrary to the findings of the Queensland Supreme Court after assessing expert evidence on the issue.

The Court found that the State had been negligent and required compensation of those residents whose properties were located closest to the area of subsidence.

## **9. The need for a simple, transparent mechanism to alert landowners and local governments to constraints**

The Collingwood Park case was heard and decided by the Queensland Supreme Court in 2013. If a similar situation was to arise today, there is still no simple search mechanism for local governments or subsequent landowners to ascertain post-mining constraints or risks such as subsidence. They would still be expected to have to work through the right to information process in the hope of finding anything relevant in boxes of historic documents and then seek their own expert advice on the relevance of that information, which the Court has already said five years ago would have been unreasonable. The only alternative to this is that the State would have to be making a mistaken assumption that all land that has been mined, successfully rehabilitated and relinquished in the future would have no constraints at all (for example, that it has been completely backfilled to the original landform, by taking fill from somewhere else), which the Court noted would be an 'unreasonable' approach for sites such as at Collingwood Park.

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<sup>44</sup> For example, the submission by Lock the Gate Alliance Ltd to the Senate Standing Committee on Environment and Communications, 10 April 2017.

This is despite the fact that DES's own rehabilitation guideline set out in a footnote a common-sense way that this could have been achieved. The guideline states: *'the rehabilitated land may need to have constraints placed on its future'* (page 10). Footnote 7 states: *'The administering authority is considering extending the concept of a site management plan to ensure appropriate post-surrender land management where contamination is not an issue. The intent is to require a third party to implement a management plan prepared by the mine operator to minimise future risk. Funding (if not covered by the compensation agreement) and the third party's level of responsibility for the management plan will require further consultation.'* This was from a suggestion that the Queensland Resources Council discussed with DES's predecessor (the former EPA) in 2005.<sup>45</sup>

This paper considers two options for improving the transparency of any post-mining constraints. Appendix 3 to this paper considers the option of covenants on title, but the covenant system (while useful for the purposes it currently addresses) would have numerous significant disadvantages, if it was to be adapted to address post-mining constraints.

A much more simple option would be to take Queensland's existing legislative framework for contaminated land and extend it to other constraints such as subsidence and erosion. This legislative framework in relation to contaminated land already applies to contaminated land located on current or former mines in Queensland, but only to the topic of contaminated land. If the framework was to be extended beyond contaminated land, then any additional ongoing constraints, such as whether particular slopes should only be grazed lightly to minimise the risk of erosion, could be articulated in site management plans<sup>46</sup>, binding on successors in title, which could then be enforced.

A breach of the site management plan by a future landowner would not mean that the mining company is liable for the landowner's breach. This would give mining companies greater confidence to relinquish and enable beneficial re-uses of the land, in exactly the same way as owners of historic manufacturing sites have put in place site management plans for contaminated land, where that land is nevertheless able to be redeveloped for beneficial subsequent land uses, subject to appropriate management constraints.

Site suitability statements could set out not just the immediate proposed post-mining land use, but any other categories of land uses for which the land would be suitable without further work, and would be binding, not only on successors in title but also for local governments upon future development applications. A local government is prohibited from allowing the use or development of, or an activity to be carried out on, land in a way that contravenes a site management plan for the land, the details of which are recorded in a relevant land register.<sup>47</sup> If the landowner later decides to develop the land for something not contemplated, the landowner would still have the freedom of choice to do further rehabilitation work, subject to State referral, and seek amendment or surrender of the site management plan, to process a development application.

Critically, the contaminated land framework, suitably adapted, would enable simple, cost-effective searches. We need to have no more Collingwood Park situations. Preventing another

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<sup>45</sup> At a biannual workshop between the former Environmental Protection Agency and the Queensland Resources Council on progressive rehabilitation (Mackay).

<sup>46</sup> Defined in Section 370, *Environmental Protection Act 1994 (Qld)*.

<sup>47</sup> Section 405, *Environmental Protection Act 1994 (Qld)*.

Collingwood Park scenario is only going to happen if there is a legislative framework for convenient, searchable transparency.

In summary, this solution would satisfy legitimate interests of a range of stakeholders:

- For local governments - confidence about administering future land uses on mined land - unlike the Collingwood Park situation.
- For the State - jurisdiction to **enforce management** of post-mining risks such as subsidence and erosion, which would presumably also provide greater confidence to the State's insurers.
- For mining companies – confidence to rehabilitate and relinquish sooner with risks managed, rather than having to hold the land indefinitely for fear that a future landholder may use the land inappropriately in the context of its known constraints.
- For future landowners (and neighbours) – a transparent and searchable system, while facilitating further land use changes if the landholder chooses to undertake further work to remove constraints (just as developers can choose to do with contaminated land).

Unfortunately, the *Mineral and Energy Resources (Financial Provisioning) Bill 2018 (Qld)* did not address these issues. It provided for a system of rehabilitation planning to replace the current system of plans of operations (or perhaps more accurately, to re-instate closure planning that used to be covered by an EMOS before the transfer of administration to the Environment Minister in 2001), but still failed to provide for a transparent system of post-relinquishment plans and suitability statements. This issue needs to be addressed before the State's rehabilitation objectives can expect to be achieved.

It is noted that Queensland Treasury proposes to release in about the second quarter of 2018 a discussion paper entitled: *Achieving improved rehabilitation for Queensland: other associated risks and proposed solutions*. Queensland Treasury proposes to release a *Residual Risk Discussion Paper* in the second quarter of 2018.<sup>48</sup> Legislative amendments arising from this discussion paper have been flagged to occur by 1 July 2019. This would be an excellent opportunity to address the remaining outstanding issues.

## 10. Development assessment and transition mechanisms for post-mining land use

### 10.1 Development assessment and transition mechanisms for post-mining land use

A special problem in Queensland is the mismatch between legislative frameworks pre and post mining relinquishment, combined with the lack of integration or co-ordination between government agencies in relation to post-mining land uses. In most jurisdictions around the world, the same government agencies and courts that administer mining also assess other land uses, but in Queensland, DES sets out post-mining land uses as part of rehabilitation requirements in EAs under the *EP Act*, contrasted with the situation post-relinquishment when local governments and State planning agencies are primarily responsible for regulating post-mining land uses under the *Planning Act 2016 (Qld)*.

Apart from an exception for non-indigenous heritage and a partial exception for building work, the *Planning Act 2016 (Qld)* does not apply to development authorised under the *Mineral Resources Act 1989 (Qld)* under Section 4A. The exemption is not only for mining as such, but

<sup>48</sup> These further papers are mentioned on the Queensland Treasury website at:

<https://www.treasury.qld.gov.au/growing-queensland/improving-rehabilitation-financial-assurance-outcomes-resources-sector/>

also covers associated activities such as quarrying on the mining lease (section 236 of the *MRA*) and potentially a variety of additional purposes (section 298 of the *MRA*). In other respects the planning instrument remains in effect,<sup>49</sup> and amended or replacement planning instruments are also in effect throughout the period of the mine life. Mining companies can and do sometimes obtain development permits during their mining operations for non-mining activities under local planning instruments from local governments and similarly, local graziers who continue to agist or lease mining land sometimes obtain local government development permits for their associated land uses, such as farm dams and the like. Upon relinquishment of a mining lease, the exemption relating to development authorised under the *Mineral Resources Act* ceases to be applicable and consequently, the normal position is that planning instruments and development approvals under the *Planning Act* regulate post-mining land uses. DES does not have jurisdiction to administer these post-mining land uses under local planning instruments post-relinquishment.

This creates a series of special problems for Queensland, which do not normally arise either in other Australian States or in other jurisdictions around the world.<sup>50</sup> Those special problems will be, to some extent, exacerbated under the new framework for progressive rehabilitation and closure plans (PRC Plans) under the *Mineral and Energy Resources (Financial Provisioning) Bill 2018 (Qld)*. A non-comprehensive list of these special problems is outlined below.

## **10.2 Lack of transitional mechanisms for administering infrastructure or other development being retained by the next landowner**

There are no transitional mechanisms to transfer government administration for a variety of valuable infrastructure to the next landowner, when the freehold land is assigned, after relinquishment of the mining lease. As explained in the *DES Guideline – Model Mining Conditions* (page 76):

*‘In addition to the criteria listed above, holders should be aware that section 276 of the Mineral Resources Act 1989 includes a requirement that it is a condition of mining leases that: ‘the holder, prior to the termination of the mining lease for whatever cause, shall remove any building or structure purported to be erected under the authority of the mining lease and all mining equipment and plant, on or in the area of the mining lease unless otherwise approved by the Minister.’*

*There are occasions when the post-mining landholder wishes to retain specified mine infrastructure, such as roads, clean water dams, amenities and the like. It is not unusual for the mining lease holder to submit a copy of a written agreement with the landholder about these issues for the consent of the Minister administering the Mineral Resources Act 1989.’*

The first case study cited in this paper (Rocks Riverside Park) was an example where the next landowner, Brisbane City Council, asked the mining company (QCL) to leave heritage items of

<sup>49</sup> The Mining Registrar notifies local governments of mining tenements and the local governments then show the locations of these tenements on their mapping, normally by way of an overlay map. The overlay map is then supposed to explain that the *Planning Act 2016* does not apply (except for limited topics) to the mining activities and other development authorised under the *Mineral Resources Act 1989*, within the areas mapped: Section 4B *Mineral Resources Act 1989*. Some local governments are better than others at complying with this provision, but generally the local governments within the major coal mining basins take care to ensure that their planning schemes do include these overlay maps.

<sup>50</sup> Examples of contrasting frameworks from other jurisdictions are provided in appendices.



mine plant and processing plant on the land, as features for the park (or rather, to return them to the land after they had already been taken away).

To take a more typical example, if the next landholder wants to retain a selection of the mine's clean water dams either for stock watering or for maintaining erosion and sediment control, these may have been regulated dams under the mine's environmental authority (EA). However, once the EA is surrendered, there is an entirely separate regime for farm dams and referable dams administered by the Minister administering the *Water Act 2000* (Qld)<sup>51</sup>, with no transitional mechanism.



Above: Family photographs provided by Caroline Morrissey, Queensland Resources Council of model boating, with Grommet the toy boat skipper and Wallace the water skier, at Broken Hill's Zinc Lakes, a popular local park and recreational location open to the public, utilizing a former tailings dam, within a mining lease owned by Perilya. The parks, including the lakes, require ongoing maintenance by groundsmen. Water levels and water quality can be affected by extended drought conditions. Groundsmen undertake maintenance and monitoring and may occasionally close the park temporarily.

This is an example of how a former tailings dam can be re-used for a beneficial purpose, but if so, there may also be a role for ongoing local jobs, for maintenance purposes, and the constraints need to be transparent and managed.

Similarly, if the next landowner wants to continue to operate the mine's quarry, which has previously been automatically authorised as part of the mine under Section 236 of the *Mineral Resources Act*,<sup>52</sup> under the *Environmental Protection Regulation 2008* (Qld) the quarry is not

<sup>51</sup> Section 96(1) *Water Act 2000* provides that an owner of land on which there is water collected in a dam may take the water for stock or domestic purposes. However, the construction and ongoing safety and management of a referable dam is regulated by the *Water Supply (Safety and Reliability) Act 2008* and, if applicable, the *Planning Act 2016*

<sup>52</sup> Section 236 provides that the holder of a mining lease may utilize, for any purpose permitted under the mining lease, sand gravel and rock occurring in or on the area of the mining lease. This authorizes the quarrying done by the holder of the mining lease, but not by that entity subsequent to the mining lease, or by any subsequent landholder, when the exemption of s. 236 and of s.4A of the *Mineral Resources Act* (the inapplicability of the *Planning Act 2016* to development authorized under the *Mineral Resources Act*) no longer apply.

even listed on the mine's environmental authority, and so normally there are no conditions specific to the quarry. Post-relinquishment, the quarry would be a continuation of a previously lawful use with no development permit conditions for the local government to administer<sup>53</sup>. Examples of landowners who may be very interested in continuing to operate a quarry might include a government agency (such as Main Roads) or a quarry company. Just because a mine resource has been exhausted does not necessarily mean that the quarry resources on the same land have simultaneously been exhausted.

Given that section 234 of the *Mineral Resources Act* allows not only for the extraction of minerals as such, but also for '*all purposes necessary to effectually carry on that mining*' (which normally includes facilities such as motor vehicle workshops, fuel storages, waste disposal and the like) and also there is a discretion for the Minister to authorise '*(b) such purposes, other than mining, as are specified in the mining lease and that are associated with, arising from or promoting the activity of mining*'. This may include major plant, such as an oil refinery or a power station. In addition, Section 316 allows for mining leases to be granted for transportation through land, notwithstanding that there is no extraction on the land.<sup>54</sup> All of this plant and infrastructure is also exempted by Section 4A of the *Mineral Resources Act* from the need for development approval under the *Planning Act* and is instead authorised under the mining tenement. Just because the mining operation has ceased on the particular mining lease where this plant is located does not necessarily mean that it would make economic sense to remove the major industrial plant that was originally associated with the mine. It may be capable of continuing independently, either on the basis that it will be supplied by other mining leases held by the same company in the general area, or from third party suppliers located further away. Preventing the mining company from relinquishing its mining lease underlying the major plant, just because there is valuable plant that should remain, would create obstacles to the redevelopment of the balance of the land for other purposes consistent with the remaining plant, such as third party manufacturing development.

In many ways, the *Mineral and Energy Resources (Financial Provisioning) Bill 2018 (Qld)* would make this situation even worse. For example, it defines a 'post-mining land use' as meaning '*the purpose for which the land will be used after all relevant activities for the PRC Plan carried out on the land have ended*'.<sup>55</sup> There is then a circular definition of the term 'relevant activities' inserted into the Dictionary, as follows: 'Schedule 4, definition *relevant activity*' – '*for a proposed PRC plan or PRC plan— means the relevant activities to be carried out on land the subject of the plan*'.<sup>56</sup> So, the 'relevant activities' means 'the relevant activities'. On the broadest interpretation, if it means any activities at all carried out on the land during the PRC Plan period, this would include, for example, continued grazing on agisted mining lease land, or other third party activities such as a powerline easement. The Explanatory Notes suggest that it is intended to mean '*mining activities and rehabilitation activities*',<sup>57</sup> although the Bill itself does not say so. Even on this narrower interpretation, the term 'mining activities' is not limited to extraction, but

<sup>53</sup> Post relinquishment, there is no mechanism or interface between the *Planning Act* and the *Mineral Resources Act* to bring development (such as a quarry) back into the regulatory structure of the *Planning Act*. That which had been lawful, prior to relinquishment, is left in unclear territory – it is not captured by the existing lawful use provisions of the *Planning Act* (s.260) as the change that has occurred is not a change to a planning instrument (as defined in s.8 of that Act ), but to the legislative regime applicable.

<sup>54</sup> This is described in further detail as 'transportation of something through, over or under the land by a pipeline, aerial ropeway, conveyor apparatus, transmission line or similar method of transport, or road'.

<sup>55</sup> Clause 99 (Amendment of Section 112).

<sup>56</sup> Clause 205 (Amendment of Schedule 4).

<sup>57</sup> Page 33.

rather, includes all of the associated infrastructure authorized under the *Mineral Resources Act*, as explained above. This means that a ‘post-mining land use’ under the Bill cannot allow for the continuation of any of the infrastructure that the mining company has constructed and that the next landowner has requested to keep (such as roads, water supply dams, workshops, a quarry, a landfill etc), because the Bill requires them to have ‘ceased’. This would also be inconsistent with the existing provision in the *Mineral Resources Act* mentioned above, enabling infrastructure to be retained.

Queensland is far from being the only jurisdiction that lacks a simple and transparent framework for the transfer of regulatory administration of infrastructure, when the infrastructure ceases being operated by a mining company but will be retained on the land. Murphy (2016) discusses similar issues in Western Australia, but the Western Australian government has already gone further down the reform path with its *Land Administration Amendment Bill 2016 (WA)*.

However, in Queensland, given that rehabilitation is part of the mining activities under the *Environmental Protection Act 1994* (Qld), and rehabilitation is treated as including the transformation to a post-mining land use (currently under EAs or in future under ‘PRC Plans’), it is also unclear where the demarcation lies between DES jurisdiction for the mining company’s rehabilitation and the local government’s jurisdiction to assess post-mining land uses that are not already existing lawful uses or accepted development. For example, if a post-mining land use is going to be an underground adventure park as in Germany, does the local government get to issue the development permit and then DES adapts its conditioning to the local government planning requirements, or vice versa? Who gets to “pull rank” and how is this coordinated?<sup>58</sup>

### **10.3 The confusing demarcation between ‘uses’ and ‘non-uses’ in Queensland, together with some circular definitions**

In summary, the new system of mine planning proposed under the *Mineral and Energy Resources (Financial Provisioning) Bill 2018 (Qld)* can be outlined as follows:

- Mines will be required to obtain approval for ‘PRC Plans’ (progressive rehabilitation and closure plans) that either provide for land to be rehabilitated to a ‘stable condition’ or to a ‘non-use management area’ (except that non-use management areas are not permitted in

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<sup>58</sup> In Australia, there is a significant body of historic caselaw relating to inconsistent approvals, or approvals that are inconsistent with refusals of other applications. Most of these cases were objector appeals against planning approvals, in circumstances where the objector argued that the approval would be a ‘clear futility’ because of either a refusal of another application in relation to a critical element of the development the subject of the planning approval, or inconsistent conditions. An approval could be overturned on the basis of ‘clear futility or illegality’ in relation to some fundamental element of the development under another application process, although the courts always tried to avoid that outcome: for example, *Walker v Noosa Shire Council* [1983] 2 Qd R 86, 90 (Full Court of the Supreme Court of Queensland; *Property Estates Ltd v Brisbane City Council* [1988] QPLR 18; *Leisuremark (Aust) Pty Ltd v Noosa Shire Council & Ors* [1988] QPLR 137 at 170 -171. It was partly for the purpose of trying to avoid these cases arising that Queensland introduced an ‘integrated development assessment system’ in 1997 under the former *Integrated Planning Act 1997*, involving a single application, with conditions input by different State referral agencies (and a right of veto for some issues), in relation to nearly all development in Queensland but excluding mining and a few other issues. The same system has carried through to Queensland’s current planning legislation, the *Planning Act 2016*, although now there is greater coordination and codification of the State agency input, by an agency known as SARA. Historically, there have been advantages for the mining industry of being excluded from this integrated system, but it is by no means clear that those advantages would be applicable to the assessment of post-mining land uses.

floodplains). These PRC Plans replace the current system of rehabilitation partly set out in environmental authority conditions and partly in plans of operations.

- The Bill gives a different meaning to the term ‘stable condition’ compared with the normal meaning of ‘stable condition’ anywhere else in the world, so this definition is set out in full here:

**‘111A Meaning of stable condition**

*Land is in a **stable condition** if—*

- (a) the land is safe and structurally stable; and*
- (b) there is no environmental harm being caused by anything on or in the land; and*
- (c) the land can sustain a post-mining land use.’*

- It can readily be seen that, again (similar to the term ‘relevant activities’ discussed above), this is a definition that has the drafting defect of being partly circular, that is, ‘stable condition’ means, in part ‘stable’. This leaves open the question whether it means ‘stable’ in all possible situations or structurally stable in accordance with normal accepted engineering practice, which may take into account future management constraints such as maintaining riverine vegetation to avoid erosion of a watercourse in a steep area. The definition also makes a curious assumption that land is only in a ‘stable condition’ if *‘there is no environmental harm being caused by anything on or in the land’*, which ignores the fact that mines often can and should co-exist with third party activities over which the mine has no control (such as overlapping tenures for other resource activities, powerline easements, substations, railways, roads) and, if more innovative post-mining land uses are developed as outlined earlier in this paper, post-mining land uses could include industrial re-development.<sup>59</sup> Words of limitation should be added, for example, ‘as a result of the relevant activities under the PRC Plan that have ceased prior to an application for surrender’.
- Finally, the definition creates the fiction that land is only ‘stable’ if it sustains a nominated post-mining land use, whereas normally (both in the current Queensland guideline<sup>60</sup> and in other jurisdictions around the world) stability is only one of the accepted elements of ‘rehabilitation’, that is, the normal formulation is that ‘rehabilitation’ involves the four elements of creating a safe, stable and non-polluting landform that is able to sustain a post-mining land use. It is not normal to take one element of rehabilitation (stability), which everywhere else is an engineering issue, and artificially extend the definition of this term so that it covers all of the other widely accepted elements of rehabilitation, such as land use planning. This appears to be the Humpty Dumpty method of parliamentary drafting. *“When I use a word,” Humpty Dumpty said, in rather a scornful tone, “it means just what I choose it to mean—neither more nor less.”*<sup>61</sup> The Humpty Dumpty method of drafting tends to be unhelpful in an international investment market such as mining, in which engineering terms acquire an internationally accepted meaning, and it is confusing to investors if they have a very different meaning in a particular jurisdiction. As noted on **page 1** of this paper, there is a COAG commitment to investigate a nationally consistent

<sup>59</sup> NB: There is specific provision in the existing final surrender provision of the *Environmental Protection Act 1994* (Qld), acknowledging the corresponding situation where there are overlapping resource tenements (Section 268A). However, the same acknowledgement has not been extended to the situation where a resource tenement is affected by other third party activities.

<sup>60</sup> [“Guideline - Rehabilitation Requirements for mining resource activities”](#) Version 2 (23/5/14). See also the recently released Queensland Government [“Mined Land Rehabilitation Policy”](#)

<sup>61</sup> Lewis Carroll, *Through the Looking Glass*.

approach to mine site rehabilitation financial obligations by mid-2018, but if so, a useful starting point would at least be for the States and Territories to have a reasonably consistent definition of what they mean by ‘rehabilitation’ and call it ‘rehabilitation’. Also, if there is to be any prospect of moving towards a nationally consistent definition of ‘rehabilitation’, it would at least be useful to have had regard to any existing recognized national definition of the term, which has already been relied upon.<sup>62</sup>

- The Bill then creates a special category of rehabilitation called a ‘non-use management area’<sup>63</sup>. Although one would have thought that the opposite of this ‘non-use’ would have been a ‘use’, in fact, the term ‘non-use management area’ is defined as follows:

*‘non-use management area means an area of land the subject of a PRC plan that cannot be rehabilitated to a stable condition after all relevant activities for the PRC plan carried out on the land have ended.’*

While it can be understood that the Queensland government may be prepared to accept surrender of mining leases where parts of the land do not have a particular nominated post-mining land use, it is not entirely clear why it would be seen as in the public interest to accept surrender of mining leases where the land does not fulfil other elements in the strange definition of a ‘stable condition’, for example, why would it be acceptable for land to be surrendered that is not structurally stable, or where it is known to be causing off-site pollution? It is noted that this aspect of the legislation was opposed by a range of NGOs in their submissions to the Economics and Governance Committee, but the committee has not recommended any amendment.

- These ‘non-use management areas’ are not permitted on ‘floodplains’, but the term ‘floodplain’ is undefined, so it is not clear which actual areas of land are treated as ‘floodplains’. Interestingly, the Explanatory Note for the Bill incorrectly states that: ‘126D (3) also contains a prohibition on leaving a void in a floodplain.’ (page 37). In fact, this is not what Section 126D(3) says. Instead, the subsection states: ‘Despite subsection (2), if land the subject of the proposed PRCP schedule will contain a void situated wholly or partly in a flood plain, the schedule must provide for rehabilitation of the land to a stable condition.’ As demonstrated through the case studies set out at the beginning of this paper, there are numerous examples around the world of residual voids that have been rehabilitated so that they are safe, structurally stable, non-polluting and support a wide range of innovative post-mining land uses. Consequently, there is actually nothing in the Bill that ‘contains a prohibition on leaving a void in a floodplain’ and nor should there be. It is easy to conceive of many economically productive post-mining land uses for voids in floodplains. The most obvious would be to convert existing dams or re-shape existing pit voids so that a post-mining landowner that is a registered water service provider could operate them sustainably as water infrastructure, for the purpose of commercially

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<sup>62</sup> Australian Government, Leading Practice Sustainable Development Program for the Mining Industry (September 2016): ‘This handbook adopts the following definition of rehabilitation: Rehabilitation comprises the design and construction of landforms as well as the establishment of sustainable ecosystems or alternative vegetation, depending upon desired post-operational land use. Mine site rehabilitation should be designed to meet three key objectives: 1. the long-term stability and sustainability of the landforms, soils and hydrology of the site 2. the partial or full repair of ecosystem capacity to provide habitats for biota and services for people (WA EPA 2006) 3. the prevention of pollution of the surrounding environment.’ (Page 3).

<sup>63</sup> Clause 99 (Amendment of s.112 (Other key definitions for ch 5))



providing water to agricultural neighbours - which may well be seen by local rural communities as significantly beneficial in areas prone to drought.

- The term **‘post-mining land use’** is defined as: *‘for land the subject of a PRC plan, means the purpose for which the land will be used after all relevant activities for the PRC plan carried out on the land have ended.’* As noted above, the term ‘relevant activities’ is then defined in a circular way as ‘relevant activities’.
- Interestingly, the definitional framework for post-mining land uses under these amendments is different from Queensland’s development assessment framework under the *Planning Act 2016*, which divides the types of development into: operational work, building work, plumbing and drainage work, ‘reconfiguring a lot’ (ie, subdivision, amalgamation and changes to the boundaries of lots) and ‘material change of use’<sup>64</sup>. Some of the types of post-mining ‘uses’ identified in the Explanatory Notes for the Bill or in existing environmental authorities for mines, would not be regarded as ‘uses’ under Queensland’s planning framework. It is particularly odd that the ‘post-mining land use’ ranked the highest under the Queensland government’s own guideline for mined land rehabilitation in recent years and consequently regularly imposed in the conditions of environmental authorities for mines (‘self-sustaining native ecosystems’ or ‘bushland’) would normally be treated as simply ‘vacant land’ in a development application form under the *Planning Act 2016* (unless the bushland is managed as ancillary to some other purpose, such as parks and recreation); it is not treated as a ‘land use’ as such. Similarly, a scenario suggested in the Explanatory Note for a ‘post-mining land use’ would not be treated under Queensland’s development assessment framework as a ‘use’ but as an ‘operational work’:

*‘For example, if a mining operation has an approved watercourse diversion and that diversion has established a stable, non-polluting and self-sustaining ecosystem over the years, re-diverting the river to its original design might have a greater environmental impact than leaving the established diversion. In this scenario the diversion may become a proposed post-mining land use.’*  
(Explanatory Notes, page 90).

If bushland is a ‘use’ and if simply leaving an existing watercourse diversion in place is a ‘use’, this begs the question of what could be treated as a ‘non-use’.

- This artificial distinction between ‘uses’ and ‘non-uses’ does not appear to have a precedent either in Queensland or elsewhere. For example, on an ordinary residential lot, it is not unusual for parts of the land to be subject to some constraints on use, such as a prohibition against building over a sewer<sup>65</sup>, or an easement to protect a neighbour’s retaining wall. The normal way to understand and assess this land use is that it is a ‘dwelling house’ lot that is subject to some constraints on use;<sup>66</sup> in terms of characterising the land use of the lot, the residential lot is not divided up into ‘domains’, separately comprising the house, the carport, the swimming pool and

<sup>64</sup> Schedule 2 *Planning Act 2016* (definition of development )

<sup>65</sup> S.192 *Water Supply (Safety and Reliability) Act 2008*, Queensland Development Code MP1.4 Building Over or Near Infrastructure,

<sup>66</sup> A more detailed list of constraints on use is summarised at <https://www.qld.gov.au/environment/land/title/valuation/considerations>



then each of the easement areas characterised as ‘non-use management areas’.<sup>67</sup> It follows that, once mining land has been relinquished, these ‘non-use management areas’ under PRC Plans will not make sense under the normal planning and valuation of land framework. A large lot that is primarily used for grazing will be characterized under both planning law and valuation of land law as grazing land and if there are some relatively minor parts of this lot that cannot be used for grazing (such as an encapsulated regulated waste landfill that is protected by a site management plan, or areas along a watercourse that have been rehabilitated with riverine vegetation to prevent erosion), these would interface more smoothly with the laws that apply post-relinquishment if they are treated simply as constraints on the broader use of the lot for grazing, not as ‘non-use management areas’.

#### **10.4 Poor interface between the planning law framework and amendment of post-mining land uses identified in PRC Plans pre-relinquishment**

As identified earlier in the paper:

- Continuing human presence for economically productive land uses provides the strongest motivation for post-closure site integrity (page 2).
- Land can be rehabilitated and relinquished earlier if it is allowed to be rehabilitated for economically productive land uses such as grazing, rather than where monitoring over many seasons is required to demonstrate self-sustaining native ecosystems (page 13).

However, the Bill has increased, not decreased, the difficulty of changing existing requirements for non-productive post-mining land uses to economically productive post-mining land uses under PRC Plans, both in the transitional provisions and amendment provisions. In the transitional provisions, the way this has been done is by requiring public notification of any proposed change at all of proposed post-mining land uses from the version set out in existing requirements (whether those requirements were in environmental authority conditions, a plan of operations or an EIS).<sup>68</sup> Similarly, once a PRC Schedule is in place, it cannot be amended without a full-blown public notification process unless it is a ‘minor amendment’ and it is deemed to be a major amendment if it changes ‘a post-mining land use or non-use management area’.

Unfortunately, this is the case even if:

- A ‘non-use management area’ is proposed to be reduced or removed and converted to a post-mining land use;
- The land use is proposed to be restored, as far as practicable, to what was in place prior to mining (or, in some cases, is still being carried out on the undisturbed or rehabilitated parts of the land, concurrently with mining operations);
- The land use is proposed to be changed to ‘accepted development’ for the area,<sup>69</sup> listed in the local planning scheme, for example, if it is proposed to change forestry to grazing within a Rural zone, or vice versa. This is despite the fact that the planning instrument has already been through a statutory public notification process, with submission rights

<sup>67</sup> For example, when valuing land, the normal methodology is that if the property is covered by two or more zonings under a town or state plan, the predominant zoning on the property determines the valuation methodology. If more than half the area of land is zoned rural, then the land will be designated as rural land: <https://www.qld.gov.au/environment/land/title/valuation/considerations>

<sup>68</sup> Clause 203, Section 755 of the Bill.

<sup>69</sup> ‘Accepted development’ does not require development approval: *Planning Act 2016(Qld)* Section 44(4).

available<sup>70</sup>, and has been subject to State interest checks<sup>71</sup>, before it takes effect. Consequently, the requirement for a mining company to go through another public notification process for the same types of 'accepted development' on the same land is an obvious duplication. Amusingly for any experienced rural planner, the Explanatory Note selects this very example: '*However, public notification will be required if, for example, in the environmental authority the post-mining land use for an area was approved as forestry, but in the PRC plan the post-mining land use for the same area is being proposed as grazing.*' (page 90).

- A development is proposed that, under the planning scheme, only requires 'code assessable development approval' and does not otherwise seek to vary the planning scheme. Under Queensland's *Planning Act 2016*, this means (among other things) that the application does not require public notification<sup>72</sup>. Again, this is because the planning scheme itself has already been subject to a public notification and submissions process, so if a person disagrees with the categorisation of development as code assessable, he or she has already had an opportunity to say so. In this situation, the sub-optimal situation arises that the mining company has to apply to the local government for the development approval (because the post-mining land use is not exempted from the *Planning Act 2016* under Section 4A of the *Mineral Resources Act 1989*, nor should it be) and the type of development has already been decided to be so uncontroversial for the local area that it only needs to be designated as 'code assessable', but nevertheless, the environmental regulator overrides this by requiring the mining company to undergo public notification and a risk of litigation. Typical examples of code assessable development for Rural zones in Queensland include: stock saleyards, roadside stalls, low impact industry, plant nurseries and the like.

If a proposed post-mining land use would be impact assessable or would require a variation of requirements under the planning scheme, it would not be exempt from the *Planning Act 2016* under Section 4A of the *Mineral Resources Act* and so it would require a publicly notified development assessment process<sup>73</sup>, notwithstanding that the application relates to mining lease land. This means that two public notification processes would be required: one under the *Planning Act 2016* and the other for the amendment to the PRC Plan under the *Environmental Protection Act 1994*. Duplicate appeal rights would also be applicable: for the development application in the Planning and Environment Court<sup>74</sup> and for the amendment to the PRC Plan in the Land Court<sup>75</sup>.

Why does this matter? Surely consultation is always a beautiful thing and there can never be too much of it?

From the perspective of a mining company, which is obviously the entity responsible for making a choice whether to go to the trouble of attempting to change a nominated unproductive land use to an economically productive land use, statutory public notification processes create delays, substantial additional costs and, most importantly, a litigation risk, which would not be

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<sup>70</sup> S. 18 *Planning Act 2016* sets out the publication notification regime for a new planning scheme, including the consultation and submissions from the public, and the consideration by local government of those submissions.

<sup>71</sup> S.18(7) *Planning Act 2016*

<sup>72</sup> S. 53(1) *Planning Act 2016* provides for public notification of impact assessable applications and applications involving variation requests. Code assessable applications do not require public notification.

<sup>73</sup> S.53(1) *Planning Act 2016*

<sup>74</sup> Chapter 6 Part 1 (Appeal Rights) and Schedule 1 (Appeals) *Planning Act 2016*.

<sup>75</sup> Clause 119 *Mineral and Energy Resources (Financial Provisioning) Bill* (Amendment of s.181 Notice of Decision)

the case if the company chooses the path of least resistance by retaining a currently required economically unproductive post-mining land use. This effectively prevents productive new rural industry and economic development, stops jobs from being created where they are most needed, and discourages landholders from taking on post-mining land for economic gain and environmental benefit.

Of course, even without a statutory requirement for public notification and litigation risk for every land use change, it would have been in the economic interest of mining companies to consult with potential purchasers of their land (such as neighbours) about post-mining land uses, and also to consult with local governments about any post-mining land uses that would require planning approval. In contrast, the additional layer of process that is created by the legislation is an opportunity for anti-mining NGOs to engage in creating delays, costs and litigation risks. If these NGOs are well-funded, compared with adjoining landowners, there is a risk created by the legislation that the interests of NGOs will prevail over the interests of less well-funded neighbours, in any situation where their objectives do not coincide.

If mining companies take the path of least resistance by not attempting to change economically unproductive post-mining land uses to productive post-mining land uses, in circumstances where the unproductive land uses take much longer periods to demonstrate that they have been successful and particularly if it is more costly to implement those land uses, the obvious solution for mining companies is to nominate, from the outset, very long-term 'milestones' for the work to be undertaken to convert to those uses, thus deferring the problem beyond the lifetimes of current investors.

As we have previously seen,<sup>76</sup> based on the analysis in the 2014 Queensland Auditor-General's report, this is not necessarily a problem from the perspective of an environmental regulator. The public revenue interest in not having to wait 50 years post-mining for relinquishment to have occurred and for economically productive post-mining land uses to be operating, is an interest of State agencies such as Treasury and for local governments; it is not directly an interest or function of a line agency that is an environmental regulator. Or at least it has not been in the past. Perhaps it is time for that regulator to change its risk avoidance approach and create a framework that encourages economically viable post-mining land uses which are responsibly proposed and well designed.

## **11. Assessing residual risk and the interface with delays**

At present, in the Queensland system, DES bears the political risk if anything goes wrong with either the relinquishment process or the progressive rehabilitation certification process, potentially long after the original decision-maker signed off. If you have responsibility for signing off on surrender of an environmental authority, which is a prerequisite to mining lease surrender and even if the residual risk is remote, DES is going to be in trouble if anything later goes wrong. If the relevant risk is only about contaminated land, this is a risk that can still be controlled, because there is a system under DES jurisdiction in relation to those issues, but this is not covered if the risk is about something else, such as erosion or subsidence, as discussed earlier in this paper.

In Queensland, DES also is not the agency that stands to benefit directly from the conversion of mined land to other economically productive land uses. Queensland Treasury, maybe line agencies such as Forestry, or local governments might be looking forward to potential revenue

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<sup>76</sup> Refer to page 11 of this paper.

from the next land use, but that is not a DES interest, at least not directly. With no statutory timeframe to process an application for relinquishment or progressive certification, there is little incentive for DES to ensure a procedurally clear, timely and cost-effective system. The same issue with extreme risk-aversion leading to procedural delays and costs that present a disincentive to companies from carrying out earlier rehabilitation, is an issue that has repeatedly arisen in other jurisdictions where an environmental regulator has the administrative function of deciding whether a site can be relinquished, without a clear framework that includes timeframes and supporting expertise, for example, refer to Pershke (2017).

Queensland Treasury proposes to release a *Residual Risk Discussion Paper* in the second quarter of 2018.<sup>77</sup> To some extent, the likely direction of this discussion paper has already been foreshadowed at the end of a report by Queensland Treasury's consultants, KPMG in association with Australia Ratings, entitled *Design of the Risk Assessment Process for the Financial Assurance Scheme* (September 2017).<sup>78</sup> The relevant part is headed: 'Resource projects with limited remaining economic life' (page 12).

In contrast with the current position under the *Environmental Protection Act 1994* (Qld), which provides for the environmental regulator to assess a 'residual risk payment' only after a surrender application has been lodged by a mining company, the KPMG paper proposes a 'targeted framework' to be adopted for 'resource projects that have a remaining estimated life of 5 years or less' (that is, essentially where the economic resource is calculated as having this remaining life, based on factors such as historic average production and forecasts) and then the calculation work will be done by a 'risk assessor' (defined as an independent contractor who assists the Scheme Manager who is to be appointed under the Financial Provisioning Bill).<sup>79</sup> The report also proposes that third parties may be appointed to advise on the rehabilitation undertaken and rehabilitation risk, if the progressive rehabilitation certification system has not already been used.<sup>80</sup> Appendix 6 of this paper addresses international comparisons of calculating residual risk in New Zealand and Canada, which may be relevant background for this further work in Queensland. In particular, the introduction of specialist expertise into the assessment process, including engineering expertise and financial expertise to assist the government in its calculations, would go a long way to addressing a major concern raised in the Pershke workshop, as outlined above.

They would also need to address some other issues, for mining companies and their local communities to have confidence in the system, such as:

- Statutory timeframes;
- Ensuring that any part of a company's residual risk payment that relates to ongoing constraints on the land that the future landholder will be managing, goes directly to the landholder rather than being held up by the government, and that the landholder is not unreasonably constrained about the use of those funds – bearing in mind that when a developer takes over a contaminated former manufacturing site, the developer is able to

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<sup>77</sup> Queensland Treasury, "Improving rehabilitation and financial assurance outcomes in the resource sector," 8 March, 2018, <https://www.treasury.qld.gov.au/growing-queensland/improving-rehabilitation-financial-assurance-outcomes-resources-sector/>.

<sup>78</sup> KPMG Australia, "Design of the Risk Assessment Process for the Financial Assurance Scheme," 21 September, 2017, [https://s3.treasury.qld.gov.au/files/Design\\_of\\_Risk\\_Assessment\\_Process.pdf](https://s3.treasury.qld.gov.au/files/Design_of_Risk_Assessment_Process.pdf).

<sup>79</sup> KPMG Australia, "Risk Assessment Process," 3.

<sup>80</sup> KPMG Australia, "Risk Assessment Process," 3.

deal directly with the former owner in relation to those issues (rather than having to beg for funds from the government).<sup>81</sup>

- A whole-of-government approach to ensuring that the government's interest in converting land to economically productive post-mining land uses is implemented, rather than being constrained by a line agency's risk aversion.
- Mining companies will not be able to achieve their objective of closing off liability post-relinquishment (and consequently, will continue to have an inadequate economic incentive to rehabilitate and convert land to post-mining land uses earlier), unless the Queensland government is able to provide certainty for the companies, their parent companies, investors and management, that they will not be subject to 'chain of responsibility' environmental protection orders post-relinquishment. At present, this remains a concern in Queensland, particularly due to the *Environmental Protection (Chain of Responsibility) Amendment Act 2016* (CoRA) which came into effect on 27 April 2016.
- Third party landowners, purchasers or proposed purchasers of mined land, who will have the responsibility for operating post-mining land uses, should be treated differently by any expert panel than 'the community'. The real expertise of graziers in operating commercial grazing land is not in the same category as a 'community' activist living in a capital city, who has no expertise in either the post-mining land use or local conditions. The same applies to a developer who will be converting land to an industrial estate or some other innovative development. The role of a local government in administering its planning scheme for the land post-relinquishment (or a State agency with responsibility for land use planning in a specific area, such as the Coordinator-General), also needs to be addressed properly, and not just as a factor for the environmental regulator to consider taking into account.
- Recognising that our legal system has long held the view that a purchaser of land must be satisfied about what they are about to purchase ie the common law principle of *caveat emptor, qui ignorare non debuit quod jus alienum emi* applies<sup>82</sup>. In the context of post-mining land use, these risks are not currently readily identifiable by a purchaser without incurring significant additional expense or extensive due diligence investigations. Without the introduction of a transparent and searchable public register of these sites, it will be difficult to avoid another 'Collingwood Park' scenario in the future. However, if such a transparent and easily searchable system is introduced, then in a first world capitalist economy, purchasers and developers ought to be allowed to make up their own minds about the costs of either ongoing management of the identified risks or alternatively the costs of undertaking further work to remove those risks, when they are working out the purchase price they are prepared to pay in a competitive market environment, rather than having government intervene to try to make those decisions for them (through a residual risk calculation process that partially duplicates that market process).

## 12. Conclusion

Development of economically productive post-mining land uses requires partnering. Planners, developers, local governments and local communities need to have a system that enables their input into post-mining land use, including commercial opportunities. The long-term successful outcomes that have already been seen elsewhere are only going to be seen in Queensland if there is a seamless interface pre and post relinquishment and genuine partnering.

<sup>81</sup> This is a complex topic that is beyond the scope of this paper to address in detail.

<sup>82</sup> 'Let a purchaser, who ought not be ignorant of the amount and nature of the interest which he is about to buy, exercise proper caution'

The Queensland reforms are a work-in-progress, with some positive signs. But to foster and create economic benefits after mining, the *Mineral and Energy Resources (Financial Provisioning) Bill 2018(Qld)* does not go far enough and in some respects, it sets in stone to an even greater extent Queensland's long-standing bias against economically productive post-mining land uses, particularly through the prescriptive transitional and amendment provisions for progressive rehabilitation and closure planning and the unprecedented and poorly thought through categorization of land between 'non-use management areas' and 'stable condition' land. This paper is an attempt to reframe the legislation and policy beyond the current proposed reforms to ensure that productive land use can occur on post-mine land in a context that manages the risks and encourages investment.

## Appendix 1 - The Context – Reviews and reforms around Australia

Around Australia, each of the other jurisdictions that has a significant and mature mining industry is currently undertaking a review, or has recently undertaken a review of its mine rehabilitation and associated financial security arrangements:

- (a) In **Western Australia**, the Audit Office released a report in 2011<sup>83</sup> finding that: *‘Stronger requirements for mine closure and rehabilitation planning have been introduced to reduce the risk of poor end-of-mine outcomes. However, the State is still exposed to significant financial risks:*
- *From 1 July 2011, all new mines need a costed rehabilitation plan. Existing mines will have to comply with this by 2014.*
  - *Financial securities held by the State against poor environmental outcomes account for only 25 per cent of estimated total potential rehabilitation costs. Options to reduce this exposure are being considered with a decision on the preferred option expected in 2011.*<sup>84</sup>

The report also criticised the Department of Mines and Petroleum’s monitoring, enforcement and reliability of records.

Subsequently, the WA government implemented substantial improvements in reforming approval processes and outlined its next objectives in a document entitled ‘Environmental Regulatory Strategy’ (2014). Apart from the framework for mine closure planning under legislation, there are also statutory guidelines, including the statutory Guidelines for Preparing Mine Closure Plans, May 2015. This has been fine-tuned with a series of more technical guidelines, divided between guidance for low-risk mines and other projects, including public consultation processes on a series of these guidelines during 2017.<sup>85</sup> Western Australia has reached quite an advanced stage with this review. It would save Queensland and other States some trouble in terms of ‘re-inventing the wheel’ if they were to have greater regard to what has already been achieved in Western Australia in terms of providing guidance for site-specific and project-specific risk assessment and tailored mine closure planning that is proportionate to the identified risks and which takes proper account of other legislation, including legislation administered by other government departments.

- (b) The **Northern Territory** Government introduced a requirement for rehabilitation to be secured 100% by bonds in 2005 but decided in 2013 that its primary problem was with historic ‘derelict’ sites and introduced a tax levy on mines and exploration operations in 2013 to raise funds to address those historic sites. Subsequently, the Northern Territory government has also released a series of handbooks, guidelines and application forms relating to topics such as leading practice for rehabilitation and closure of a mine site. More technical guidance is also available on particular issues such as rehabilitating tracks and gridlines.<sup>86</sup>

- (c) In **Victoria**, the final report from the Hazelwood Mine Fire Inquiry 2015/2016 on *Mine Rehabilitation* (Vol IV), criticised the data available from the government, which made it

<sup>83</sup> Western Australian Auditor General’s Report, *Ensuring Compliance with Conditions on Mining* (September 2011).

<sup>84</sup> Page 9.

<sup>85</sup> Available at <http://www.dmp.wa.gov.au/Consultation-16497.aspx>

<sup>86</sup> Further information is available at <https://nt.gov.au/industry/mining-and-petroleum/mining-activities/mining-forms-and-guidelines/mine-closure-and-rehabilitation-forms-and-guidelines>



difficult to assess whether rehabilitation liability was secured adequately or inadequately,<sup>87</sup> and recommended amendments to the government's Bond Policy. In addition, the report noted that:

*'The Board finds that the current regulatory system is ill-equipped to solve complex problems regarding rehabilitation. An effective regulatory system requires:*

- *Transparency*
- *role clarity*
- *systematic processes*
- *clear definitions and criteria (including for progressive and final rehabilitation and closure)*
- *timelines and milestones*
- *stakeholder engagement and community consultation*
- *monitoring and review processes.*

*Independent expertise and advice is essential to addressing rehabilitation issues in the Latrobe Valley.'*<sup>88</sup>

The Board also recommended the establishment of a post-closure fund, with contributions from both mine operators and the State government.<sup>89</sup>

In April 2016, the Victorian Premier announced that bonds would need to be substantially increased,<sup>90</sup> and those increased bonds have been submitted in a three-stage process, with the last instalment following an independent review.<sup>91</sup> The government also agreed to develop a region-wide strategy for the rehabilitation of the coal mines and to reform state mining laws and establish an independent commissioner to oversee mine rehabilitation and carry out an inquiry to determine the exact costs of cleaning up the mines once they close. However, Victoria still has some way to go in this regard, compared with jurisdictions that started the process earlier, such as Western Australia.

- (d) In **South Australia**, the Minister for Mineral Resources and Energy announced a comprehensive review of South Australia's mining legislation, including in relation to 'financial assurance models that maintain community confidence in mine closure and environmental rehabilitation performance and outcomes' in 2016.<sup>92</sup> From November 2016 to January 2017 the Department of Mineral Resources and Energy released three Discussion Papers, one on each of its separate mining laws. The *Statutes Amendment (Leading Practice in Mining) Bill 2017* was introduced to address some of the recommendations arising from public consultation on the discussion papers. Further Bills relating to other issues are proposed to be released once ongoing consultation is complete. South Australia was starting from a much lower base than other States that have a larger and more mature mining industry, so some of the reforms that South

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<sup>87</sup> Page 196.

<sup>88</sup> Page 196.

<sup>89</sup> Recommendation 12 on page 200.

<sup>90</sup> <http://www.theage.com.au/victoria/latrobe-valley-brown-coal-mine-bonds-rise-dramatically-in-hazelwood-fire-response-20160415-go76u2.html>

<sup>91</sup> Further information is available at <http://earthresources.vic.gov.au/earth-resources-regulation/information-for-community-and-landholders/mining-and-extractives/latrobe-valley-coal-mines/latrobe-valley-coal-mines-bonds>

<sup>92</sup> [http://minerals.statedevelopment.sa.gov.au/latest\\_updates/leading\\_practice\\_review\\_to\\_ensure\\_south\\_australia\\_maintains\\_worlds\\_best\\_mining\\_laws](http://minerals.statedevelopment.sa.gov.au/latest_updates/leading_practice_review_to_ensure_south_australia_maintains_worlds_best_mining_laws)

Australia is starting to make only now (such as information available to be searched on public registers) has been in place in other States for many years.

- (a) The **New South Wales** Audit Office has released a similar report in May 2017, entitled '*Mining Rehabilitation Security Deposits*', finding that: '*The security deposits the Department holds are not likely to be sufficient to cover the full costs of each mine's rehabilitation in the event of a default.*'<sup>93</sup> A new financial calculator had just been released, but the Audit Office found that this could be further improved by considering planning approvals, insurance options, verification of costs and engaging in stakeholder consultation. The report criticized the fact that there was also no residual risk payment framework to manage any ongoing risks post-relinquishment (unlike Queensland).<sup>94</sup> The report found that the criteria for mine closure outcomes were not sufficiently clear and specific, and noted that the Department had commenced a review to try to improve this situation. While mining companies provided annual reports on the progress of their rehabilitation, the Audit Office criticized the lack of review and monitoring of these reports and the unreliability of the Department's data. Finally, while the report recognized that there can be many valid reasons why a mining company may need to put a mine into 'care and maintenance' temporarily, there was criticism of mines being 'indefinitely' put into 'care and maintenance',<sup>95</sup> not dissimilar to the criticisms in Queensland. ;

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<sup>93</sup> Page 2.

<sup>94</sup> Page 3.

<sup>95</sup> Page 5.

## Appendix 2 – Outline of the current Queensland Legislative, Policy and Administrative Framework relating to Mined Land Rehabilitation and Post-Mining Land Use Controls

Queensland has been selected as the primary case study for this paper, as it has a significant and mature mining industry and is currently reviewing multiple aspects of its mine rehabilitation policy and legislative framework that are also relevant to other jurisdictions. Queensland also has some unique regulatory and governance features, some of which may be helpful for other jurisdictions to consider adopting, while other special features may unintentionally create greater obstacles to rehabilitation and relinquishment than in other jurisdictions.

By way of background, according to the State Government:<sup>96</sup>

*'In 2015-16, the industry generated some 60,000 direct jobs, as well as approximately \$2.2 billion in royalties.' The government's estimate of mine disturbed land is 220,000 hectares. To put this in context, the total area of the State is 1.853 million km<sup>2</sup>.*

### Overview of administration and key legislation relating to environmental assessment for mining projects - current

In Queensland, there are multiple State government agencies with a key role in the assessment and administration of mining, including mined land rehabilitation.

#### 1. Current role of DNRME

Part of the administration of operational mines is by the Department of Natural Resources, Mines and Energy (DNRME)<sup>97</sup> under a mining lease, which is not an interest in land, but rather a type of tenement authorizing mining, subject to conditions, under the *Mineral Resources Act 1989* (Qld)<sup>98</sup>. Although the majority of mining lease land in Queensland is privately owned in freehold by the mining companies (or related entities), DNRME may also have a role in administering any underlying Crown lease tenures, if mining tenements overly leases under the *Land Act 1994* (Qld) or other Crown land.

#### 2. Current role of DES

Since January 2001, mines are also regulated partly by the Department of Environment and Science (DES) under 'environmental authorities' which currently include conditions relating to rehabilitation, in accordance with the *Environmental Protection Act 1994* (Qld)<sup>99</sup>. Note that this department has had a different name every few years and it was formerly known as the Department of Environment and Heritage Protection (EHP) before the most recent name change in December 2017, so most of the references to the department in this paper are to 'EHP'. Currently, conditions relating to rehabilitation are assessed under the *DES Guideline - Rehabilitation requirements for mining resource activities*.<sup>100</sup> This has not been overridden by the brief *Mined Land Rehabilitation Policy* released in 2017, notwithstanding that the *Discussion Paper: Better Mine Rehabilitation for Queensland* (May 2017) has proposed some variations to aspects of the existing Guideline.

<sup>96</sup> *Discussion Paper: Better Mine Rehabilitation for Queensland*, page 8. (Based on these figures, the proportion that mine disturbed land bears to the total area of Queensland is 0.11872%.)

<sup>97</sup> *Administrative Arrangements Order (No. 4) 2007* (Qld).

<sup>98</sup> Chapter 6, *Mineral Resources Act 1989* (Qld)

<sup>99</sup> Refer to Chapter 5, *Environmental Protection Act 1994* (Qld)

<sup>100</sup> Available at <https://www.ehp.qld.gov.au/land/mining/guidelines.html>

### 3. Historic position was different

Before the environmental administration of mining was transferred to the predecessor agency for DES in January 2001, it used be regulated by the predecessor agency for DNRME under the *Mineral Resources Act 1989*. Before that transfer of administration, many mining leases were rehabilitated and surrendered, in some cases successfully and in other cases less successfully. Historically, there were also many instances of mines being abandoned without going through the surrender process, which was easier to do before substantial financial assurance requirements secured rehabilitation. (Examples of successful and unsuccessful historic surrenders are provided in the main body of this paper.<sup>101</sup>) Since the transfer of administration in 2001, the QAO report noted that: '*EHP identified 45 instances between 2003 and 2013 where it approved the surrender of a resources industry environmental authority and returned financial assurance to the holder, all of which were level 2 resources activities*<sup>102</sup>. *EHP was unable to provide a complete list due to poor recording of data in Ecotrack.*'<sup>103</sup>

### 4. Role of the Coordinator-General for designated projects

In Queensland, there is also an option for larger or more complex projects, including mining projects, to be assessed by the Coordinator-General. This special position of the Coordinator-General was originally established in 1938 to coordinate the provision of public infrastructure and encourage development and the creation of jobs, arising from the Great Depression. The Coordinator-General currently administers the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act), assisted by the relevant department, which is currently called the Department of State Development, Manufacturing, Infrastructure and Planning.

### 5. Issues arising from the split in administrative roles

This split in administration (or at least, the particular allocation of jurisdiction) has not always led to desirable results. For example, in a report issued by the Queensland Audit Office in 2014, *Environmental regulation of the resources and waste industries*, the Auditor-General criticised '*inadequate communication and processes between the two departments*',<sup>104</sup> including failures to reconcile records, including financial records at that time. It is noted that financial management is not typically a core area of expertise of an environmental regulator in any case. Relocating this function to a 'scheme manager' reporting to Queensland Treasury is now proposed by the *Mineral and Energy Resources (Financial Provisioning) Bill 2018* and this proposed change of administration would clearly be more logical than the current position.

A further complication is created by the interface with the role of the Coordinator-General in the assessment process for major projects.

There are also some unusual problems in Queensland caused by the lack of integration between the imposition of conditions by the environmental regulator, DES, regarding post-mining land use at the stage when a mine is either operating or being assessed for conditions of its approval, contrasted with the administration of the actual post-mining land uses post-

<sup>101</sup> The Kidston gold mine surrender, which occurred just after the transfer of administration, but with the process having been carried out largely under the old system, is discussed at page 8 of this paper. A successful example, Rocks Riverside Park, is outlined at pages 2-3 of this paper.

<sup>102</sup> That is, small operators or exploration only.

<sup>103</sup> Page 45.

<sup>104</sup> For example at page 3.

relinquishment (including any necessary development permits for those land uses), as explained in detail at pages 23-33 of this paper.

### **The current role of ‘plans of operation’ and ‘financial assurance’ and proposed changes**

At the date of this paper, mine disturbance together with proposed progressive rehabilitation is required to be set out in ‘plans of operation’, prepared by the mining company and administered by DES<sup>105</sup>, and rehabilitation is secured by a ‘financial assurance’ (normally a bank guarantee, although cash and insurance are also options)<sup>106</sup>. In order to relinquish or ‘surrender’ a mining lease<sup>107</sup>, it is first necessary to satisfy environmental authority conditions relating to rehabilitation<sup>108</sup>, and relinquishment may be subject to a ‘residual risk payment’ relating to any ongoing maintenance and monitoring that may be required<sup>109</sup>.

Under the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*, the current system of plans of operations combined with rehabilitation conditions in environmental authorities is proposed to be replaced by, and transitioned to, a new system of ‘PRC plans’ (which stands for ‘progressive rehabilitation and closure’ plans). As mentioned at pages 24-27 of this paper, at the time of writing this paper, there are currently numerous drafting errors in these provisions and only one of these errors was noted by the Economics and Governance Committee for correction. However, the intent of the Bill in relation to financial provisioning can be briefly summarized as follows:

- The Bill replaces the current ‘financial assurance’ requirements with a different ‘financial provisioning’ scheme, involving the appointment of a ‘scheme manager’ to manage the scheme. Unlike the current system, this person would not be within the environmental regulator, but rather, would be a public servant within Queensland Treasury and with the ability to delegate work to Treasury personnel, bringing some much needed financial expertise to this financial management. The scheme manager may also obtain specialist external advice, for example, from major accounting firms.
- It is expected that most mines will contribute to a pooled fund, known as the Financial Provisioning Fund, unlike the current system which requires that financial assurance is provided for each environmental authority and may only be applied to that authority. This fund will be invested.
- However, some mines will not be permitted to be part of the pooled fund and instead will continue to provide ‘surety’ (such as a bank guarantee). This includes some ‘high risk’ operations, and also where a corporate group has multiple projects where the total ERC would exceed the fund threshold (currently \$450 million), so as to preserve the integrity of the fund in case of the collapse of any one large operator. Conversely, operators who are selected to contribute to the pooled fund do not have the option of providing surety instead. The allocation between the pooled fund and surety will be compulsory. This division between contributors to a pooled fund and providers of surety represents what was called the ‘tailored solution model’ in the preceding discussion papers by Queensland Treasury Corporation.
- The amount of either the contribution to the fund or the surety will be partly based on the risk allocation for the project (which will, in turn, largely depend on an assessment of the

<sup>105</sup> Refer to Part 12, Division 1, Chapter 5 *Environmental Protection Act 1994 (Qld)*

<sup>106</sup> Refer to Part 12, Division 2, Chapter 5, *Environmental Protection Act 1994 (Qld)*

<sup>107</sup> Refer to Part 10, Chapter 5, *Environmental Protection Act 1994 (Qld)*

<sup>108</sup> Section 269 (1)(b) *Environmental Protection Act 1994 (Qld)*

<sup>109</sup> Refer to Sections 271 – 273 (Inclusive) *Environmental Protection Act 1994 (Qld)*

financial soundness of the company, and to a lesser extent on project-specific matters such as compliance) and partly on the 'estimated rehabilitation cost' (ERC) for the project. Where the ERC is below a threshold of \$100,000 (such as for small operations), this calculation will not be required.

- While the fund's primary purpose is to secure the State's risk in relation to financial collapse or abandonment of a site that has not been fully rehabilitated, particularly if the site is not able to be sold to another entity that will assume the liability, once the fund has reached a threshold level, it may be used to rehabilitate historic abandoned mines and for research into rehabilitation techniques.
- As part of the same Bill, amendments have been included to the *Environmental Protection Act 1994*, requiring mines to put in place a 'progressive rehabilitation and closure plan' (PRC Plan), which in part will replace existing rehabilitation schedules of environmental authorities and in part will replace the more detailed rehabilitation provisions of plans of operations. Unfortunately, the transitional provisions currently have a gap in that they do not recognize that many existing mines currently have their longer term rehabilitation commitments set out in a plan that is referred to in environmental authority conditions, but the plan itself is not duplicated into the environmental authority conditions.<sup>110</sup>
- Both the 'tailored solution model' for financial provisioning and the system of PRC Plans are unique to Queensland. In relation to the 'tailored solution model', this was the result of considerable interstate and overseas research and analysis undertaken by Queensland Treasury Corporation and major consultation with industry and interest groups;<sup>111</sup> consequently, it would be fair to describe the concept as innovative but well-considered (although it is noted that industry groups have raised some concerns with drafting issues and matters of significant detail remaining to be worked out). In the case of PRC Plans, it is not quite accurate for the Explanatory Notes to describe this as 'aligning' with 'the majority of other jurisdictions' (page 11), as explained in the Appendices to this paper relating to New South Wales and Western Australia. It is also not apparent from the Explanatory Notes or the *Discussion Paper: Better Mine Rehabilitation for Queensland* (2017) how the Queensland Government has been able to reach a view that its scheme for PRC Plans represents an improvement on mine planning frameworks interstate, justifying the inconsistencies between Australian States and Territories.

### Progressive rehabilitation certification

Queensland also has an unusual procedure available allowing mines the option of applying to DES for 'certification' of progressive rehabilitation of parts of their mining leases which have not yet been relinquished<sup>112</sup>, but this process is not compulsory and is not a prerequisite to relinquishment.

The progressive rehabilitation certification sections were inserted into the *Environmental Protection Act 1994* (Qld) by the *Environmental Protection and Other Legislation Amendment*

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<sup>110</sup> Section 126C(4).

<sup>111</sup> Summarised in the Explanatory Notes page 9.

<sup>112</sup> Refer to Part 6, Division 1, Chapter 5A *Environmental Protection Act 1994* (Qld)

*Act 2005 (Qld)*. The intent of this groundbreaking initiative was explained by the then Environment Minister, Desley Boyle, in the Parliamentary Debate on the Bill:<sup>113</sup>

*'[T]his bill allows for the staged rehabilitation of working mines. When mining activity ceases in one section it can be rehabilitated while another area of the mine is worked. With this approach the impact on the environment is lessened and the company will have certainty of its responsibilities through a certification process.*

*Amendments to the Environmental Protection Act 1994 will assure mining companies that rehabilitation requirements will not change for those areas where rehabilitation has been completed early in the life of a mining project.'*

In other words, the legislation was intended to encourage more progressive rehabilitation by giving greater confidence to companies that the goal-posts would not shift retrospectively after their rehabilitation had been completed, which was clearly a laudable aim, with mutual benefits for the mining industry and the public interest.

Case studies where progressive rehabilitation certification has been undertaken in Queensland include:

- Kestrel Coal Mine (Rio Tinto Coal Australia) – 507 hectares of land certified in 2012;
- Great Northern Mining's sapphire mine – 51 hectares of land certified in 2015;<sup>114</sup>
- Newlands Coal Mine (Glencore Australia) – 73 hectares in 2017.

Also at the date of this paper, Wilkie Creek coal mine (Peabody Australia) had undertaken a 'mock' case study in consultation with the former EHP, for the purpose of assisting EHP (now DES) with developing guidelines for progressive rehabilitation certification, in relation to 87.9 hectares, but with the intent of lodging a formal application at a later stage.

While these case studies are encouraging, nevertheless the total number of hectares certified represents only a tiny fraction of the land that has actually been completely rehabilitated by mines in Queensland. For example, at Wilkie Creek coal mine, a total of 577 hectares has been actually rehabilitated but only 87.9 hectares had been submitted as a progressive rehabilitation case study. Similarly, in the Environment Minister's media release announcing the Glencore certification, the government quoted Glencore:

*'In the past five years (2012-2016), 53 per cent of land disturbed by Glencore's coal operations in Queensland over that period has been rehabilitated, with a 2017 target to rehabilitate more land than our mines disturb.'*

Another interesting point is that, during the first decade after the progressive rehabilitation amendments took effect, only one major mine sought certification (Kestrl). If the amendments were so obviously beneficial to both the mining industry and the public interest, why were they not utilized earlier and more frequently? These questions are relevant for other jurisdictions to ponder, if considering implementing similar provisions.

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<sup>113</sup> Queensland, *Parliamentary Debates*, House of Representatives, 23 August 2005, [pinpoint] (D Boyle, Minister for Environment, Local Government, Planning and Women), (p. 2585).

<sup>114</sup> Media Release by the then Environment Minister, the Hon Steven Miles, *Mine Rehabilitation case study shows the way forward*, 14 July 2017.



As pointed out in a legal article that was published even before the 2005 amendments took effect,<sup>115</sup> ‘the devil is in the detail’ in relation to how the process would work in practice.

In particular, a severe deterrent from using the process is that if a mining company decides to bring forward the assessment of its rehabilitation work, this also brings forward the requirement to pay to the government a ‘residual risk payment’, which would otherwise only have been required upon final surrender.<sup>116</sup> This means that it is only in a company’s financial interest to seek certification if there are either zero residual risks or constraints on the land, or only negligible residual constraints. This requirement does not even make sense from the government’s perspective, because at the stage of progressive rehabilitation certification, the company still holds a mining lease and environmental authority in respect of the land that has been certified and is still responsible for maintaining it. Financial assurance is still in place at this stage, to secure the company’s obligations until surrender. The requirement to pay residual risk at the stage of progressive rehabilitation certification is a case of double-dipping. The State is also not ‘locked in’ to accepting the land for surrender at a later stage, if the quality of the rehabilitation has deteriorated in the interim, because one of the statutory criteria at the time of a surrender application is whether ‘the certified rehabilitated area for the relevant tenure still meets the criteria...against which it was certified’.<sup>117</sup> The Queensland Resources Council has raised this issue with the Queensland Government (most recently in a letter dated 5 September 2017), but it remains to be addressed at the date of this paper.

Secondly, the amount of this residual risk payment was supposed to have been calculated in accordance with a guideline authorized by the legislation,<sup>118</sup> but only limited guidance about this calculation is provided in the *Guideline – Rehabilitation requirements for mining resource activities* (EM1122) and in particular the interface between this process and the remaining financial assurance was not worked out.

Thirdly, an application for progressive rehabilitation certification was required to be accompanied by an ‘environmental risk assessment’, which again, descends to a level of detail that is not justified in circumstances where the mining company still holds a mining lease and environmental authority in respect of the land that has been certified and is still responsible for maintaining it, and a financial assurance remains in place. This document is required to ‘comply with a methodology published by the administering authority’, which has not in fact been published, more than a decade later. It is also required to ‘evaluate the likelihood and effects of events that reach a threshold of significance published by the administering authority’ in circumstances where this document has in fact not been published and there would be no point in publishing it, because there is no need to model for these events while the company is still there and responsible for ensuring that those events do not happen.<sup>119</sup>

If the administering authority also is uncomfortable with processing a certification application where the land is constrained by a third party (for example, an easement holder), whose actions

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<sup>115</sup> Briggs J, Sullivan C and Hanmore T, ‘Sow as you go: progressive rehabilitation for mining in Queensland’ (2005) 24 ARELJ.

<sup>116</sup> Section 318ZL *Environmental Protection Act 1994* (Qld). NB: The broader topic of residual risk payments is outlined further at pages 30-32 of this paper.

<sup>117</sup> Section 268(c)(i) *Environmental Protection Act 1994* (Qld).

<sup>118</sup> Section 318ZN *Environmental Protection Act 1994* (Qld).

<sup>119</sup> Section 318ZF *Environmental Protection Act 1994* (Qld).

are beyond the control of the mining company, this prevents even more rehabilitated land from being certified.<sup>120</sup>

None of these issues have been addressed yet by the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*. The topic of residual risk generally has been deferred to future legislative amendments, following further discussion papers that are to be issued. The current provisions about residual risk payments upon progressive rehabilitation certification are simply illogical and could be removed now, without waiting for an entire replacement system of residual risk assessment to be worked out for the purposes of the final surrender process, discussed below.

If the pitfalls in Queensland's current progressive rehabilitation certification process are ever addressed by amending legislation and by preparing the missing guidelines, the concept would be recommended for adoption by other States, as an incentive for earlier rehabilitation.

### **Final surrender process and residual risk payment calculation**

In order to relinquish or 'surrender' a mining lease<sup>121</sup> in Queensland, it is first necessary to satisfy environmental authority conditions relating to rehabilitation<sup>122</sup>, and relinquishment may be subject to a 'residual risk payment' relating to any ongoing maintenance and monitoring that may be required<sup>123</sup>.

In more detail, currently a surrender application for an environmental authority for a resource activity must be accompanied by a 'final surrender report'<sup>124</sup> and a compliance statement about the extent of compliance with conditions (not limited to rehabilitation conditions, but including other issues such as noise which are unlikely to be relevant). A positive feature of the Queensland statutory framework is that there is some statutory acknowledgement that land may be surrendered even if it has some ongoing constraints, which recognizes the practical reality outlined at page 8 of this paper that mined land should not be expected to be exactly the same post-surrender as it was pre-disturbance, and this is addressed through:

- A requirement for the final rehabilitation report to 'describe any ongoing environmental management needs for the land'<sup>125</sup> and 'an environmental risk assessment of the land',<sup>126</sup>
- A statement of 'residual risks associated with the rehabilitation of the land' and calculation of a residual risk payment to be made to the State government in relation to those residual risks.
- Residual contamination under a site management plan.<sup>127</sup>

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<sup>120</sup> The authors have interviewed industry representatives who have advised that this was a factor in deciding that progressive rehabilitation certification applications could not be made over rehabilitated land.

<sup>121</sup> Part 10, Chapter 5, *Environmental Protection Act 1994 (Qld)*

<sup>122</sup> Section 269 (1)(b) *Environmental Protection Act 1994 (Qld)*

<sup>123</sup> Sections 271 – 273 (Inclusive) *Environmental Protection Act 1994 (Qld)*

<sup>124</sup> Section 262(1)(d) *Environmental Protection Act 1994 (Qld)*

<sup>125</sup> Section 264(1)(c) *Environmental Protection Act 1994 (Qld)*.

<sup>126</sup> Section 264(1)(d) *Environmental Protection Act 1994 (Qld)*.

<sup>127</sup> Section 268(d) *Environmental Protection Act 1994 (Qld)* and model conditions under Queensland's Guideline – Model Mining Conditions.

Similar acknowledgements are included in the *Mineral and Energy Resources (Financial Provisioning) Bill 2018* in Clause 163 (Insertion of Section 264A) requiring a post-mining management report to ‘state the requirements for ongoing management of the land’ and ‘propose residual risks’.

In contrast, the New South Wales Audit Office released a report in May 2017, entitled ‘*Mining Rehabilitation Security Deposits*’, which criticized the fact that there was no residual risk payment framework to manage any ongoing risks post-relinquishment (unlike Queensland).<sup>128</sup> In this respect Queensland is already a step ahead of NSW.

However, similar to the situation with progressive rehabilitation certification, the Queensland framework for final rehabilitation and surrender currently has gaps, so that it has not been working in practice. Although the legislation provided a framework for assessment and calculation of residual risks, this assessment was required to be ‘*worked out under a guideline or other document publicly available from the administering authority*’,<sup>129</sup> but only limited guidance about this calculation is currently provided in the *Guideline – Rehabilitation requirements for mining resource activities* (EM1122).

Secondly, it is a statutory requirement that ‘The administering authority may only approve a surrender application if the authority is satisfied the conditions of the environmental authority have been complied with’.<sup>130</sup> There is no qualification or limitation on this broad provision, so this would include irrelevant conditions to the topic of surrender, such as noise. It would also include rehabilitation conditions where there may have been a past breach, such as breach of a timeframe, but the rehabilitation has now been completed. There would be few mines anywhere that could literally satisfy this prerequisite.

Thirdly, while the legislation does provide for the situation where a mining tenement is overlapped by another resource tenement, the administering authority has to be satisfied that the environmental authority for the overlapping prescribed resource activity has been amended to include a condition equivalent to the rehabilitation condition of the environmental authority to be surrendered.<sup>131</sup> This is not a topic over which the mining company has control. Overlapping gas tenures may well be subject to different or inconsistent conditions. Even the State cannot necessarily control this issue because the second tenure may have been subject to Commonwealth requirements that the State could not control. Also, there is no similar acknowledgement that other third party rights may be ongoing, for example, a pipeline or power easement.

When calculating the residual risk payment, the legislation currently betrays its bias against economically productive post-mining land uses by requiring a component relating to ‘*reinstate rehabilitation that fails to establish a safe, stable and self-sustaining ecosystem*’.<sup>132</sup> This means that the legislation itself fails to acknowledge that a valid outcome of rehabilitation might be concrete hardstand for an industrial post-mining land use, a building such as a casino, or an innovative post-mining land use of a hole in the ground such as a velodrome. Interestingly, this problem (whether it is a drafting error or evidence of intentional bias) has not been corrected by the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*. It is noted that there is

<sup>128</sup> Page 3.

<sup>129</sup> Section 264(1)(d)(iii) *Environmental Protection Act 1994 (Qld)*.

<sup>130</sup> Section 269(1)(a) *Environmental Protection Act 1994 (Qld)*.

<sup>131</sup> Section 269(2) *Environmental Protection Act 1994 (Qld)*.

<sup>132</sup> Section 272(b) *Environmental Protection Act 1994 (Qld)*.

another opportunity for reform following the proposed Discussion Paper on residual risk reform. However, it does not entirely make sense that the statutory provisions relating to the surrender process would have been amended so substantially under the *Mineral and Energy Resources (Financial Provisioning) Bill 2018* and then amended again perhaps 6-12 months later. This simply creates a problem of ‘shifting sands’ for investors in the industry, contrasted with the position if all of these issues had been addressed at once.

### **Post-relinquishment – Ongoing chain of responsibility liability**

Notwithstanding the framework for relinquishment and a residual risk payment to cover ongoing risks, Queensland has a unique legislative framework imposing ongoing potential liability that can continue post-relinquishment, not only for mining companies, but also their investors, shareholders, directors, employees and others, known as the ‘Chain of Responsibility’<sup>133</sup>.

In the case of ‘high risk companies’,<sup>134</sup> there is express provision that environmental protection orders and cost recovery notices can be issued against them and their ‘related persons’ (such as investors and shareholders) post-surrender,<sup>135</sup> while in the case of non-‘high risk companies’ there is no statement that these orders cannot be issued against the companies and their related persons post-surrender.

Orders may require recipients post-surrender to address contaminated land issues<sup>136</sup> - whether or not there is already an instrument in place to address those issues comprehensively (such as a site management plan and site suitability statement), and whether or not the contamination arose from the holder’s own previous activities or a third party’s activities. Similarly, orders can require the recipient to address other types of serious or material<sup>137</sup> risks (for example, subsidence, erosion), even if those risks have been addressed during the closure process and a residual risk payment has been made to the government’s satisfaction at the time, but the government later wants a larger amount.<sup>138</sup> Although a guideline assisting the State with its exercise of discretion for these orders has been published and provides some degree of comfort about the factors to be taken into account, the fact remains that companies investing in Queensland and their investors do not have any statutory certainty that a final surrender together with the government’s acceptance of a residual risk payment represents the end of the company’s contingent liability. If the Queensland government genuinely wants to encourage companies to rehabilitate and surrender earlier, this topic needs to be reconsidered.

Any other jurisdictions considering following the Queensland example should also consider whether these aspects of the ‘chain of responsibility’ legislation are likely to be more counter-productive than productive. The pitfalls of a statutory regime for permanent liability are also

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<sup>133</sup> Part 5, Division 2, Chapter 7 *Environmental Protection Act 1994 (Qld)*.

<sup>134</sup> Defined as either externally administered companies or associated entities of these companies: Section 363AA *Environmental Protection Act 1994 (Qld)*.

<sup>135</sup> Section 363AD *Environmental Protection Act 1994*.

<sup>136</sup> Section 363AD(4)

<sup>137</sup> Supra. NB: The term ‘material’ environmental harm is defined to include anything not ‘trivial or negligible in nature’ (Section 16).

<sup>138</sup> Note that Section 363ABA(b) only says that the administering authority ‘may’ have regard to whether the company ‘made adequate provision’ for the rehabilitation (eg, this would include a residual risk payment), when the Queensland Resources Council submitted to the Legislative Committee that the word ‘may’ should be changed to ‘must’, the Queensland Parliament chose not to change this word, clearly keeping its options open to decide not to have regard to this factor.

considered in an appendix to this paper comparing the residual risk regime in Saskatchewan, Canada.

### Appendix 3 – Comparison with covenants on land

For the purposes of creating enforceable long-term restrictions on land use, outside of the contaminated land management framework, this paper has recommended for Queensland the proposal of extending the existing statutory framework for site management plans and suitability statements. However, an alternative that has been considered for the same purpose would be the adaptation of the existing system of covenants on title.

**Advantages** of this alternative, compared with extending the statutory framework for site management plans, would include:

- (a) Most (but not all) jurisdictions around Australia have some version of a framework for covenants on title, and also there are variations on this type of instrument in many jurisdictions around the world, which means there is widespread familiarity with the terminology; and
- (b) Site management plans and suitability statements are currently restricted to addressing risks from contaminated land, so statutory amendments would be required (as recommended by this paper) to address other risks such as subsidence or erosion. In contrast, covenants can already address geotechnical issues. An example is the standard form of covenant registered by Sunshine Coast Regional Council for geotechnically compliant residential development.<sup>139</sup>

In general terms, a covenant was originally a deed under seal, requiring a party to do or not do something, and covenants on land needed to ‘touch and concern’ the land. Historically, common law about this type of instrument developed in England and spread to other English-speaking jurisdictions such as the United States of America and Commonwealth jurisdictions.

Covenants may either be:

- (a) Restrictive – meaning that a party is forbidden from carrying out a specified action; or
- (b) Positive – requiring the performance of an action, such as monitoring.

Notwithstanding that the word ‘covenant’ is used in many jurisdictions around the world, it now has a different meaning from place to place. There is no uniform statutory framework for covenants on land around Australia. Covenants have sometimes been used for some very questionable purposes, for example, in the USA there was a widespread historic use of covenants to create racially segregated neighbourhoods, starting in the mid-nineteenth century and particularly popular in the period immediately following World War II.<sup>140</sup> To put it mildly, not all covenants have necessarily been for reasonable purposes; there is a role for governments to set some boundaries rather than leaving it entirely to the market to work itself out.

#### 1. Queensland summary

Queensland has created a more restrictive framework for the topics that can be addressed by covenants on land compared with most other jurisdictions that have covenants - which is unsurprising, given that many of the topics that would typically have been addressed by covenants in other jurisdictions tend to have been already addressed in detail in Queensland by local government planning instruments or building requirements, rather than property instruments. Queensland has a long history of a strong system of local government planning. The intent of this more detailed framework was outlined in the explanatory notes for several of

<sup>139</sup> A similar covenant was found to have been consistent with Section 97A *Land Title Act 1994* in *Grandview Horizons Pty Ltd v Maroochy Shire Council & Ors* [2007] QPELR 588 (Robertson DCJ).

<sup>140</sup> Kennedy, Stetson (1959). [\*"Who May Live Where". Jim Crow Guide: The Way it Was\*](#)

the amending Acts creating this framework, for example, in the explanatory notes for the *Natural Resources and Other Legislation Amendment Bill 1999* (Qld), it was noted that: ‘*it is not intended that a covenant replace or circumvent a planning scheme or a condition of a development approval.*’

### 1.1 Features in common between the two options

In Queensland, similar to most other jurisdictions that have a Torrens system of title, there is a statutory framework enabling covenants to be registered on title:

- For freehold land, under the *Land Title Act 1994* (Qld) Part 6 Division 4A; and
- For Crown land, under the *Land Act 1994* (Qld) Chapter 6 Part 4A Division 8A.

The fact that these covenants can easily and cost-effectively be searched by purchasers or any members of the public is an advantage that registered covenants have in common with site management plans.

Apart from the common advantage of transparency, registered covenants also share some other advantages with Queensland’s system of site management plans and site suitability statements:

- Upon registration, a covenant that is consistent with the requirements of the legislation attaches to the land and binds the landowner and all successors in title until it is released.<sup>141</sup>
- A covenant can restrict land uses and building uses, for example, that the land or part of it must not be used for residential purposes or that an area defined by survey plan must not be used for driving vehicles or other machinery.<sup>142</sup>
- Not only can government agencies enforce the requirements, but also there are other persons who may be affected by a breach who would be entitled to enforce.<sup>143</sup>

### 1.2 Disadvantages of covenants

However, covenants have many more disadvantages than advantages, when considered for the purpose of providing a long-term framework to manage post-mining land use risks. (This is not intended to suggest or imply that there is anything disadvantageous about the limitations contained in the current Queensland statutory framework for covenants on land in the context of the original purposes for which those limitations were established, but just that the limitations were established so as to address a different set of issues than is under consideration in this paper and would not be readily adapted to deal with managing the risks of rehabilitated mined land while still achieving Parliament’s original intentions.) Disadvantages of covenants include the following key points:

- **Not strong enough** - Site suitability statements and site management plans for managing contaminated land are able to bind local governments and prevent them from approving inconsistent development that would be unsuitable in the context of ongoing management of the contamination (at least, unless the applicant goes through a process of carrying out further work satisfying the State Government that the constraints are able to be removed or

<sup>141</sup> Section 97A(4) *Land Title Act 1994* or Section 373A(7) *Land Act 1994* (Qld).

<sup>142</sup> These examples of acceptable restrictions are provided in (2015) *Land Title Practice Manual* (Queensland), Chapter 31.

<sup>143</sup> Sections 13 and 55 *Property Law Act 1974* (Qld). However, note that the ability of government to create and enforce covenants is one of the advantages of the Queensland framework which is not shared by some other jurisdictions, for example, refer to the discussion below in relation to Victoria.



changed).<sup>144</sup> The opposite applies to covenants, which are required to be not inconsistent with the local government planning scheme that is in effect when the instrument of covenant is registered, unless the covenant is pursuant to a development approval or infrastructure agreement under the *Planning Act*.<sup>145</sup> (Covenants are even weaker in other States in this regard, as discussed below.) Of course, this is not a problem for covenants that happen to be not inconsistent with the planning scheme in effect at the time the covenant is registered, for example, a covenant to conserve a rehabilitated area of riparian vegetation that has been established partly for the purpose of avoiding erosion would be highly unlikely to be inconsistent with a planning instrument. Similarly, it would not be a problem if the local government itself has issued a development permit for the post-mining land use that requires the covenant (such as an industrial land use), but in the majority of cases in central Queensland, no development permit would be required for the post-mining land use that is consistent with community expectations for the neighbourhood, because this would often be grazing, forestry, bushland and other purposes that are ‘accepted development’ under the planning instrument. Many people are unaware that in Queensland, notwithstanding that mining activities (and other authorised purposes under the *Mineral Resources Act 1989 (Qld)* such as quarrying associated with the mining activity) are exempt from the requirement for most types of development permits under Section 4A of that Act, in other respects the planning instrument remains in effect,<sup>146</sup> and amended or replacement planning instruments are also in effect throughout the period of the mine life (as discussed further in Appendix 2). Mining companies can and do sometimes obtain development permits during their mining operations for non-mining activities under local planning instruments from local governments and similarly, local graziers who continue to agist or lease mining land sometimes obtain local government development permits for their associated land uses, such as farm dams and the like. The underlying zoning for major coal mines in Queensland is often ‘Rural’ or similar zones such as ‘Rural Residential’. Upon mine closure, if there is residual contamination in particular specified locations, a site management plan and site suitability statement can override the planning instrument, by requiring that these parts of the land must not be used for food production (unless further remediation is done). Similarly, if site management plans could be extended to include other issues apart from contaminated land, such as subsidence, they could prevent dwelling houses within the affected areas, which would normally otherwise be ‘as-of-right’ at low densities in Rural or Rural Residential zones, and this would avoid the type of situation that arose in the Collingwood Park case discussed on page 20 of this paper.

- **Area of land covered** – Unlike a site management plan and site suitability statement, which can cover the entire area of land affected by an issue (whether this land is freehold or Crown land), in Queensland, covenants would need to be divided into separate instruments

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<sup>144</sup> Section 405 *Environmental Protection Act 1994 (Qld)*.

<sup>145</sup> Section 97A(6)(b) *Land Title Act 1994 (Qld)* or Section 373A(9) *Land Act 1994 (Qld)*.

<sup>146</sup> The Mining Registrar notifies local governments of mining tenements and the local governments then show the locations of these tenements on their mapping, normally by way of an overlay map. The overlay map is then supposed to explain that the *Planning Act* does not apply (except for limited topics) to the mining activities and other development authorised under the *Mineral Resources Act 1989*, within the areas mapped: Section 4B *Mineral Resources Act 1989*. Some local governments are better than others at complying with this provision, but generally the local governments within the major coal mining basins take care to ensure that their planning schemes do include these overlay maps.

under separate legislation, depending on which parts of the land are freehold and which are Crown land.<sup>147</sup>

- **Integration of risk management requirements** – The extension of the site management plan and site suitability statement mechanism to cover issues beyond contaminated land would enable a single integrated set of management requirements, rather than dividing up the management requirements between different documents under different legislation. (The *Guideline – Model Mining Conditions* already provides a reminder that there should be a site management plan prior to relinquishment if there is any residual contamination.)
- **Lack of integration with the planning framework** – As a titles issue, covenants are not integrated into the State referrals system within the development assessment system in Queensland, in contrast with the contaminated land framework.<sup>148</sup> A future developer of rehabilitated mined land, which is subject to a site suitability statement preventing the land from being used from the developer's preferred land use, always has the option of undertaking further rehabilitation work at the developer's cost, so as to reduce constraints on the land, and having that further work assessed by the State as part of a development proposal,<sup>149</sup> leading to amendment or surrender of the site management plan under the *Environmental Protection Act 1994*.
- **Lack of integration with the mine closure process** – There is provision in Queensland's *Planning Act 2016* for use or preservation covenants to be required as part of development conditions or infrastructure agreements, and correspondingly for those covenants to be released if the development does not proceed.<sup>150</sup> Given that mine development is outside Queensland's normal planning framework, there is no similar trigger in the mine closure process. The lack of integration between Queensland's mine closure process and Queensland's planning framework is also a broader topic, discussed on page 21 and following.
- **Constraints on the subject-matter of covenants:**
  - **Cannot set conditions precedent** – A covenant cannot contain a condition precedent to the use of the land for a stated purpose.<sup>151</sup> There is no similar restriction on site management plans. To address post-mining risks such as subsidence or erosion, there may well be steps that ought to be enshrined as conditions precedent to establish particular uses, such as expert reports or further earthworks.

<sup>147</sup> This is not necessarily a problem in other jurisdictions. For example, in Western Australia, the *Transfer of Land Act 1893* deals with both freehold land and certain Crown land.

<sup>148</sup> Covenants are, to some extent, integrated with planning in the sense that local governments can require covenants by way of development permit conditions, for example under Section 97A(6A) *Land Titles Act 1994*. However, this is a different topic from the benefits of Queensland's integrated development assessment system, involving State-level referral of various issues listed in the *Planning Regulation 2017 (Qld)* which are considered to be topics of State interest. Queensland has resisted including 'property' issues as much as possible in this list of topics, as a matter of long-standing policy.

<sup>149</sup> For example *Planning Regulation 2017 (Qld)*, Schedule 10 Part 4 Division 1; Division 3 Table 1 (unexploded ordnance). There are also existing provisions in the *Planning Regulation 2017* designed to cut red-tape for contaminated land remediation, such as facilitating vegetation clearing for this purpose (Schedule 21) and there would be advantages for future landholders if that framework could be extended to any further work they may wish to do to remove other constraints.

<sup>150</sup> For example, Section 107 *Planning Act 2017 (Qld)*.

<sup>151</sup> Section 97A(8)(c) *Land Title Act 1994 (Qld)* or Section 373A(11)(c) *Land Act 1994 (Qld)*.

- **Fencing and construction** – It is not unusual around the world for former minesites to have some ongoing requirements for fencing, such as to manage grazing intensity or to exclude grazing from selected areas such as riparian areas. However, in Queensland, covenants are prevented from dealing with any ‘architectural, construction or landscaping standard’<sup>152</sup>, and fencing is treated as a ‘landscaping’ issue.<sup>153</sup> Similarly, there may well be construction standards arising from any subsidence constraints, which could not be addressed by a Queensland covenant, although this would not be a problem in most other jurisdictions that provide for covenants on land.
- **Slopes** - Queensland does allow for covenants to preserve slopes, but only if this is ‘a natural or physical feature of the lot that is of cultural or scientific significance’<sup>154</sup> and it would be questionable whether a rehabilitated spoil dump slope would be seen as being of cultural or scientific significance. The limitations on Queensland covenants in relation to earthworks can be seen from the example provided in the manual to illustrate invalid covenants: ‘an example of a covenant that does not comply with the legislation would be a covenant providing that earthworks on a lot shall not exceed a maximum height of 2.0 metres’.<sup>155</sup> For rehabilitated mined land, it may be appropriate to include restrictions relating to earthworks.

The situation is further complicated by the fact that, even after a covenant has been registered in Queensland, there is a risk that, many years later, the covenant may be found to have been of no effect. A covenant that does not comply with any of the numerous limitations on its subject-matter can be taken to have no effect at a later stage, even if it was originally properly registered.<sup>156</sup> From the perspective of a mining company that wants to rehabilitate early so as to be able to clean its slate of liabilities, the risk that a covenant to protect the future safety of the land could later be found to have no effect, opening the way for a future landowner to develop the land unsafely and then blame the mining company, would create too much uncertainty, leaving aside the risk to State and local governments.

## 2. Other Australian jurisdictions

There are no uniform laws about covenants on title around Australia, but rather, each State has its own framework, some of which are outlined below. In many ways, the framework for covenants in other States would be even less reliable and less sophisticated than in Queensland, as a mechanism for long-term residual risk management of mined land. Consequently, if there is ever to be a reasonably consistent uniform approach to this issue, covenants would not be the way to go.

- **Enforcement** - From the perspective of governments (both State and local) and their insurers, there is an obvious public interest in ensuring that any post-mine closure residual risks are not only provided for, but also easily capable of being enforced by government. In Victoria, generally, developers impose covenants to protect the longer term standard of development and character of an estate that they have developed, so that the remainder of the land retains its value and it is not the role of State or local

<sup>152</sup> Section 97A(8)(a) *Land Title Act 1994 (Qld)* or Section 373A(11)(a) *Land Act 1994 (Qld)*.

<sup>153</sup> (2015) *Land Title Practice Manual*, Part 31.

<sup>154</sup> Section 97A(3)(b) *Land Title Act 1994 (Qld)* or Section 373A(5)(b) *Land Act 1994 (Qld)*.

<sup>155</sup> (2015) *Land Title Practice Manual*, Part 31.

<sup>156</sup> Section 97AA *Land Title Act 1994* or Section 373AB *Land Act 1994 (Qld)*.

governments to enforce these covenants,<sup>157</sup> although they are considered if applications for planning permits are received that would be inconsistent with the restrictive covenants and an application has not also been made to set aside the restrictive covenants.

- Local governments can set aside covenants and it may not always be clear whether or not they have done so – a question that is often resolved only be litigation** – Unlike the position in Queensland, in many other States, local governments have power to set aside covenants. In Victoria, local governments have the power to vary or set aside restrictions, normally with the consent of the benefited landowner, but also in some circumstances without consent.<sup>158</sup> In NSW, the situation is even less certain. Under Section 28(2) of the *Environmental Planning and Assessment Act 1979 (NSW)*, local governments have broad powers to sweep aside a wide variety of registered interests, including covenants: 'For the purpose of enabling development to be carried out in accordance with an environmental planning instrument or in accordance with a consent granted under this Act, an environmental planning instrument may provide that, to the extent necessary to serve that purpose, a regulatory instrument specified in that environmental planning instrument shall not apply to any such development or shall apply subject to the modifications specified in that environmental planning instrument.' The term 'registered interests' includes covenants<sup>159</sup> and can also include similar restrictions in other types of property instruments such as leases.<sup>160</sup> This is normally done without even giving any consideration to the content of those covenants and whether they continue to be justified. This is a power that has frequently been exercised in practice. In many instances, it has been unclear whether a sweeping 'covenants clause' in an environmental planning instrument has defeated particular covenants or parts of covenants, with the consequence that it has been necessary for the parties to take the matter to court to obtain a determination.<sup>161</sup>
- In Western Australia, the **notification provisions** relating to registered covenants have been described as "obscure".<sup>162</sup> Covenants that are registered are subject to the rules for their disposition and amendment in law and in equity. Certificates of title for benefited land do not have to note covenants even when registered, but burdened land certificates of title must have a notation of it. Where covenants are noted on a registered plan under Part IVA of the *Transfer of Land Act 1893 (WA)*, they do not need to be noted on the benefitted or burdened land certificates of title. Nowhere is there any explanation in the statute as to the logic of this scheme. Under the *Land Administration Act 1997 (WA)*, the Minister may register a positive or negative covenant on Crown land registered under part IIIB of the *Transfer of Land Act 1893*. The covenant may relate to what is built on the land, or make any building at all forbidden. It may also determine that parcels must be transferred or sold together, or otherwise set conditions on transfers. Positive covenants of this kind must be obtained by consent from the landholder. In other words, on land where mining is most likely to take place (Crown land in WA), the Minister does

<sup>157</sup> *Restrictive Covenants: A short guide to restrictive covenants and what they mean for landowners* (Victorian Government).

<sup>158</sup> Section 60(2) *Planning and Environment Act 1987* (Vic).

<sup>159</sup> Section 28(1).

<sup>160</sup> eg *Marjen Pty Ltd v Coles Supermarkets Australia Pty Ltd* (1996) 90 LGERA 363 (Pearlman CJ).

<sup>161</sup> For example, *Cracknell and Lonergan Pty Limited v Sydney City Council* (2007) 155 LGERA 291 (Preston CJ); *Lennard v Jessica Estates Pty Limited* [2008] NWCA 121.

<sup>162</sup> AJ Bradbrook, S MacCallum, *Bradbrook and Neave's Easements and Restrictive Covenants* 3<sup>rd</sup> ed, Chatswood, NSW: Lexis Nexis Butterworths at 466.

have some power to put covenants in place for post-mining economic land uses. Unlike Queensland, only certain provisions of the *Planning and Development Act 2005 (WA)* apply to Crown land. The planning legislation is administered by the Planning Commission, which has significant powers to condition development and these powers would likely override private covenants where they were inconsistent. Given the difficulties of the notification provisions in relation to covenants (discussed above), the legislative arrangements in relation to development approval, planning schemes and covenants does not present particularly fertile ground for the use of covenants in WA for post-mining land use. The provisions in the *Land Administration Act*, however, do allow the Minister some power to give effect to post-mining land use.

In conclusion, while covenants on title may be a possible alternative in some limited instances, for the purposes of managing residual risks post-mining, a preferred alternative would be to extend Queensland's existing framework of site management plans and site suitability statements beyond the topic of contaminated land so as to cover other possible residual risks that are capable of being managed in a similar way. This would be simpler, provide longer-term certainty and would be binding on everyone who should be bound until such time as there is appropriate practical justification (such as further rehabilitation work) for varying or releasing the restrictions.

## Appendix 4 – Comparison with NSW

New South Wales has a better record than Queensland in having achieved relinquishment of mining leases following successful rehabilitation. In this regard it is worth noting that the relevant NSW guideline has long-standing explicit recognition that there may be a wide variety of post-mining land uses (rather than Queensland's current strict hierarchy of preferred uses), and there is also a framework for trying to achieve a consistent interface between mine closure planning and planning approval of post-mining land uses, unlike Queensland.

### 1. Some criticisms

In other respects, the NSW system is far from perfect and would benefit from reviewing recent progress in Queensland. In fact, NSW is already undertaking a review of its processes. Key criticisms of the NSW framework that are relevant to Queensland's current review include:

- **Residual risks** - NSW does not have any framework at all for a residual risks payment upon surrender of a mining lease, contrasted with Queensland's current position of having a statutory framework that still has some gaps and flaws (discussed in Appendix 2). In NSW, instead of a site-specific residual risks assessment and corresponding payment, there is a blanket 5% allowed in the financial assurance calculator tool, allocated to post-closure risk, but the NSW Auditor-General noted that *'the Department was not able to provide a basis for this allowance'*.<sup>163</sup> The NSW Auditor-General strongly criticised this aspect of the NSW framework and recommended a fund to cover state-wide risk, to which all mines would contribute, as a possible mechanism. NSW would do well to consider the more detailed work that has been undertaken by the Queensland Treasury Corporation and its consultants in investigating options for expert assessment of rehabilitation outcomes at individual sites, calculation of residual risk and particularly the availability of insurance to cover government risk for any 'events' arising from post-relinquishment residual risk. Apart from the points noted by the NSW Auditor-General, there is no apparent incentive for individual sites to reduce residual risk below the blanket threshold allowed in the NSW calculator, in the current situation.
- **Financial assurance unlikely to be adequate** – While it is beyond the scope of this paper to address the topic of financial provisioning during operations in any detail, it is worth noting briefly that, just as in Queensland, the NSW Auditor-General found that financial assurances were 'unlikely' to be adequate. Poor administrative oversight contributed to this issue, for example, the Auditor-General noted that *'six of the 14 cost estimates we reviewed were not signed by the mine manager, making enforcement more difficult'*.<sup>164</sup> This seems a fairly basic issue to check.
- **Quality of closure planning varied** – The Auditor-General noted that: *'There is also significant variation in the quality of MOPs'*<sup>165</sup> (ie, mine operation plans, the approximate equivalent of Queensland plans of operations). This meant that in some instances, rehabilitation and closure outcomes identified in mine planning were considerably more 'vague'<sup>166</sup> than in other instances. In many cases, this related to the fact that the original approvals were similarly vague, or had completely deferred the issue of post-mining land uses and landforms for future consideration.<sup>167</sup>

<sup>163</sup> New South Wales Audit Office, *'Mining Rehabilitation Security Deposits'* May 2017, Page 19.

<sup>164</sup> Supra Page 3.

<sup>165</sup> Supra, Page 9.

<sup>166</sup> Supra, Page 3.

<sup>167</sup> Supra, Page 12.

- **Timeframe between cessation of mining operations and surrender of mining leases –**  
While noting that in NSW at least there have been some surrenders in recent years and timeframes are not as slow as in Queensland, there is still considerable room for improvement. It is worth quoting the Auditor-General's findings in detail on this point:

*'The estimated time between cessation of mining and successful rehabilitation and closure is another uncertainty, being difficult to estimate as it depends on many variables. However, it is a cost-critical aspect of closure planning and expert advice indicates it has been underestimated in most mine closures. A review of 73 mine closure plans dating from 2007 to 2013 showed that, on average, relinquishment of the mining lease is proposed to be achieved in 11 years. A separate review of 57 mines in actual closure shows that only five have so far achieved relinquishment with an average closure period of 14 years after production ceased. The remaining 91 per cent of sites in closure had an average closure duration of over 21 years and counting.'*<sup>168</sup>

At present, the the Division of Resources and Geoscience (Department of Planning & Environment, Resources & Energy) is driving a rehabilitation reform program, including developing a Draft Code of Practice: Rehabilitation of Mining and updating its calculator and a Rehabilitation GIS Portal for mapping of mine rehabilitation.<sup>169</sup>

As a preliminary comment, it would be unfortunate if the NSW regulatory response to the criticisms of the Auditor-General was to try to be more rigidly prescriptive in its closure planning requirements for mines. Bearing in mind the key findings of this paper relating to the need for incentives and flexibility to achieve economically productive post-mining land uses that are responsive to the market, a more prescriptive and inflexible NSW regulatory response would only throw more obstacles in the path of rehabilitation and relinquishment, and slow down the process even further. It would also be a case of 'throwing the baby out with the bathwater', in terms of some aspects of its framework that are better in NSW than in Qld, outlined below.

## **2. Outline of the NSW statutory framework for mined land rehabilitation planning and current guidelines – with notes on key advantages**

In broad summary, under the current NSW system:

- (a) The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the development assessment and approvals framework for exploration and mining activities in NSW. Conditions of these development consents broadly define the scope of a development and the level of acceptable impact.
- (b) Projects are divided into:
  - (i) 'State Significant Development', for which the Minister for Planning is the consent authority. This includes All new coal mines, mineral sand mines, other large mines and mines in environmentally sensitive areas; and
  - (ii) Non-State Significant Development, for which either the relevant local council or the Western Lands Commissioner is the consent authority.
- (c) Post-mining land uses can be specified in the development consent for the mine or additional development consents.
- (d) Standard mining lease conditions also require rehabilitation and require a 'Mining Operations Plan (MOP) to have been approved prior to significant disturbance. Administration of MOPs is under the *Mining Act 1992 (NSW)*. MOPs are for periods up to 7 years, similar to Queensland plans of operations (up to 5 years). Similar to the

<sup>168</sup> Page 11.

<sup>169</sup> Summary available at <https://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/programs-and-initiatives/rehabilitation-reform-project>



historic position (as opposed to the current position) for plans of operations in Queensland, MOPs are administered by a department with specialist expertise in mining and geophysics, rather than an environmental regulator.

- (e) MOPs are required to be prepared in accordance with a guideline, *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013* (ESG3)<sup>170</sup> which replaced earlier guidelines. The guideline explains that 'a MOP is intended to fulfil the function of both a rehabilitation plan and a mine closure plan. It should document the long-term mine closure principles and outcomes whilst outlining the proposed rehabilitation activities during the MOP term'. The MOP must be accompanied by a Rehabilitation Cost Estimate prepared in accordance with "*ESG1: Rehabilitation Cost Estimate Guidelines*"
- (f) Importantly, the MOP 'must be consistent with the relevant development consent'. In Queensland, plans of operations must be consistent with conditions of environmental authorities, but environmental authorities are unable to intervene in Queensland's non-mining planning system to approve post-mining land uses under a local planning scheme. In NSW, development consents can approve mining and post-mining land uses.
- (g) Where a post-mining land use has not already received all necessary approvals, the MOP 'must identify all regulatory requirements that specifically affect the progress toward the post mining land use.' This is a step that is missing in Queensland.
- (h) The MOP must outline the 'rehabilitation phases' for each 'domain'. While the Guideline provides some examples to show the formatting of tables for rehabilitation phases, it emphasises that '*The rehabilitation phases will **depend on the post mining land use goal and rehabilitation objectives.***' The Guideline also specifically acknowledges that some post-mining land uses would not involve growing and monitoring plants: '*Engineered post mining land uses, such as industrial land, car parks or road surfaces, are generally static and can be rehabilitated in defined engineering steps. These are land uses not subject to the variables of growth and development like natural living systems. Engineered land uses are completed relatively quickly and do not require complex monitoring programs.*' Queensland would potentially benefit from taking on board this recognition of flexibility to adapt to different types of post-mining land uses, when working out a guideline to explain what is meant by 'milestones' under the PRC Plan framework in the *Mineral and Energy Resources (Financial Provisioning) Bill 2018*.
- (i) A useful feature of the NSW system that enables some early construction works (such as powerline easements, pipelines, vents and the like) to be progressed before a full detailed MOP has been prepared and approved is the provision for an 'initial short-term MOP' that only addresses the first stages of development.

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<sup>170</sup> Environmental Sustainability Unit – Mineral Resources, NSW Government.

## Appendix 5 - Comparison with Western Australia (WA)

In a report in 2017 the New South Wales Auditor General compared the mine closure planning process in New South Wales with that which has been developed in Western Australia. In the Auditor General's view, the WA mine closure scheme was considered superior for the following reasons:

The mine operation planning guidelines in New South Wales:

1. provided limited information on how to address offsite impacts;
2. Did not adequately deal with the steps required to relinquish the mining licence after closure;
3. Lack information on how heritage sites were to be managed during and after closure, leading to consequent problems in adequately assessing the cost of rehabilitation in the rehabilitation calculations;
4. Contain insufficient requirements to provide detailed closure plans;
5. Do not properly indicate the timing of the provision of the mine closure plans, at least until the mine was near closing;
6. Did not address the existence near the mine of materials available for conduct of rehabilitation;

In addition, estimating the time between cessation of mining activities and final successful rehabilitation and closure is uncertain in New South Wales and was not adequately covered the closure planning regime in New South Wales, in fact many mine closures had significantly underestimated the costs of these issues. The time it takes to relinquish the mining lease post closure is always underestimated in fact the Auditor General estimated that 91% of sites in closure had an average closure duration from cessation of mining to relinquishment of tenure of over 21 years. The Auditor General pointed out that any unexpected early mine closure could not be adequately addressed in the existing New South Wales mine closure regimes. There was a great variability in the estimation of security deposits in different mine operation plans. Only a few of the mine operation plans include a robust risk assessment of rehabilitation and closures risks, such as slope stability, erosion control, surface water and ground water quality, management of final voids, and capping of tailings dams. Closure criteria were often also poorly handled in mine operation plans in New South Wales reviewed by the Auditor General.

By contrast, the Western Australian scheme is much more detailed. The *Mining Act 1978 (WA)* provides in s74 that a mining lease application must be accompanied by a mining proposal. S70O defines this to include a mine closure plan, which is defined as a document that is in the form required by the guidelines and contains information of a kind required by the guidelines about the decommissioning of each proposed mine and the rehabilitation of the land in respect a mining lease is sought or granted as the case requires. The guidelines must be made available without charge for public inspection (s70P of the *Mining Act 1978*). The Western Australian mine closure planning guidelines are 100 pages long. They are, as indicated by the NSW Auditor General, a significantly more detailed and prescriptive than the mining operation plans developed in New South Wales.

To this extent the new PRC planning process is certainly closer to WA's scheme than to NSW. It is more prescriptive than NSW, but not, on examination, as detailed or prescriptive as WA. The proposed PRC plan and PRCP Schedule incorporated into it concentrate on rehabilitation almost to the exclusion of social, economic and community matters (except to the extent the consultation mandated by section 126C(1)(c)(iii) and (iv) addresses those matters, but they are

not required)(see amendments to section 112 to add the definitions of these things, and section 126D for the required contents of a PRCP Schedule).

The comment at page 11 of the EM for the Queensland Bill that “the new legislation in Queensland will align with the majority of other jurisdictions... which have existing legislative safeguards requiring mining companies to have a life-of-mine planning document that is approved by the regulator” is, strictly, accurate. It does “align with the majority of other jurisdictions.” But it does not do what WA’s scheme does, which allows for explicit economic and social engagement about post-mining land use in a way that is not only not explicit in Queensland, but not even clear that such engagement is required. As to transfer of liability, the WA guideline requires “an explicit, written legal agreement with the subsequent land managers to accept the lining legacy obligations and any outstanding costs of remediation, monitoring and reporting.” Multiple post-mining land uses must be considered at the earliest stages of mining in WA (see 6<sup>th</sup> dot point on page 12 of the WA Guidelines, section 3.1 Principles of mine closure; and column 2 of table 1 on page 16).

### **Financial provisioning in WA**

The provisions which govern financial security for rehabilitation of mine sites in WA are contained in the *Environmental Protection Act 1986 (WA)* (**‘EPAWA’**) and the *Mining Rehabilitation Fund Act 2012 (WA)* (**‘MRFWA’**) and their associated regulations. There is a type of bond and a levy. The bond is dealt with in the EPAWA. The levy is addressed in the MRFWA.

#### **‘Bond’**

The CEO of the department administering the EPAWA may, with the consent of the Minister, insert a condition into any environment-related authorisation which requires the holder to give financial assurance to the State to raise the risk for the holder of losing the bond in the event of non-compliance with the environmental authority’s conditions. The criteria for deciding whether or not to impose a condition for a bond are (1) the degree of risk of environmental harm the Department assesses is likely given the nature of activities and their propensity to cause environmental harm; (2) if clean is likely to be needed for such harm should it occur; (3) the existing performance of the holder in complying with other authorities it holds or has held; and anything else provided for in the regulations (section 86C EPAWA). Similar to Queensland, the bond amount is arrived at through an assessment by the State of the clean-up costs should mitigation of environmental harm be required. Amendments can be proposed by either the State or the holder throughout the life of the authority.

The bond can be provided in several ways: a bond, an insurance policy or another type of security as requested by the State. It can be called upon by the State at any during or after the authority’s term (section 86B EPAWA). The State can mandate compliance through other means than mitigation as well, including monitoring, management and directions to the holder (section 48, 68A and 69 EPAWA). Bond conditions do not apply just to mining activities: they can be applied to other types of impact on land such as clearing, damage to vegetation, works, emissions of waste or noise.

#### **Levy**

A mining rehabilitation levy is imposed on holders of all mining tenements under the MRFWA. The funds generated for the fund are designed to pay for the clean-up of abandoned mine sites and in fact any land adversely affected by mining. The regulations under the MRFWA set out the basis for calculating the contribution required to be made to the Fund by the holder of the tenement. The rehabilitation liability estimate is calculated by reference to amounts prescribed per activity (such as a tailings dam) and per area affected multiplied by rates set for each type of

activity. The higher the impact of the activity on the environment, the higher the rate ascribed to the activity. The levied amount is 1% per annum of the amount thus calculated. This levy is paid into the Mining Rehabilitation Fund (MRF) to offset the States risk of abandonment of mine sites or bankruptcy of holders of tenements. Levy amounts can be amended throughout the life of the tenement. The capital in the MRF may be used for rehabilitation of sites which have paid in, should a holder be unable to pay for whatever reason. The return on the MRF is to be used for abandoned mine sites where the holder cannot be found or no longer exists. The return on the MRF can also be used to fund enforcement and administration costs, and rehabilitation works, especially holders or prospective holders of tenements. If payments which are due annually are not paid by holders, or are paid late, the State may issue penalty notices.

The levy under the MRF applies only to mining activities and authorities. Importantly, the State has a discretion to impose a smaller amount of bond, if it assesses that the levy will adequately manage the State's risk (see fact sheet issued by DMIRS: *MRF - FAQs*).

## Appendix 6 - International comparisons

### 1. Queensland context for considering international comparisons

The Queensland Government is only part-way through a series of reforms. A *Residual Risk Discussion Paper* is proposed to be released in the second quarter of 2018.<sup>171</sup> To some extent, the likely direction of this discussion paper has already been foreshadowed at the end of a report by Queensland Treasury's consultants, KPMG in association with Australia Ratings, entitled *Design of the Risk Assessment Process for the Financial Assurance Scheme* (September 2017).<sup>172</sup> The relevant part is headed: 'Resource projects with limited remaining economic life' (page 12).

In contrast with the current position under the *Environmental Protection Act 1994* (Qld), which provides for the environmental regulator to assess a 'residual risk payment' only after a surrender application has been lodged by a mining company, the KPMG paper proposes a 'targeted framework' to be adopted for 'resource projects that have a remaining estimated life of 5 years or less' (that is, essentially where the economic resource is calculated as having this remaining life, based on factors such as historic average production and forecasts) and then the calculation work will be done by a 'risk assessor' (defined as an independent contractor who assists the Scheme Manager who is to be appointed under the Financial Provisioning Bill).<sup>173</sup> The report also proposes that third parties may be appointed to advise on the rehabilitation undertaken and rehabilitation risk, if the progressive rehabilitation certification system has not already been used.<sup>174</sup>

In effect, this would mean that what is currently known as a 'residual risk payment' would be covered by financial provisioning while the project is still operating, and this figure would be able to reduce as a result of further rehabilitation, until it either reaches zero (if there is assessed to be zero risk upon surrender) or the amount that would previously have been separately required as a 'residual risk payment'.

Although not expressly cited in either the KPMG report or the Queensland Government's other reports so far relating to the financial assurance framework reform process, this proposed framework bears a strong resemblance (that is not coincidental) to the 'RISQUE Method' that has already been used elsewhere, described in detail by Bowden, Lane and Martin, *Triple Bottom Line Risk Assessment* (2001). Consequently, it is useful to examine some of the international case studies that have applied the RISQUE Method. This analysis is not intended to suggest or imply that the Queensland Government proposes to adopt the RISQUE Method exactly and it is understood that the method would be fine-tuned for Queensland.

### 2. New Zealand – the Martha Mine Project

One of the case studies featured by Bowden, Lane and Martin (2001) was the Mount Martha Mine, discussed in Chapter 15 – *Indemnity in Perpetuity: Mining, New Zealand*. In fact, Dr Bowden appeared as an expert witness on behalf of the Waihi Gold Company (an unincorporated joint venture involving four companies) in the New Zealand Environment Court,

<sup>171</sup> Queensland Treasury, "Improving rehabilitation and financial assurance outcomes in the resource sector," 8 March, 2018, <https://www.treasury.qld.gov.au/growing-queensland/improving-rehabilitation-financial-assurance-outcomes-resources-sector/>.

<sup>172</sup> KPMG Australia, "Design of the Risk Assessment Process for the Financial Assurance Scheme," 21 September, 2017, [https://s3.treasury.qld.gov.au/files/Design\\_of\\_Risk\\_Assessment\\_Process.pdf](https://s3.treasury.qld.gov.au/files/Design_of_Risk_Assessment_Process.pdf).

<sup>173</sup> KPMG Australia, "Risk Assessment Process," 3.

<sup>174</sup> KPMG Australia, "Risk Assessment Process," 3.

in a case<sup>175</sup> addressing a series of objections against an application for extension by Waihi Gold Company of an existing open pit gold and silver mine. The existing pit was situated directly adjacent to the central business area of the town of Waihi, and almost all of the existing mining licence was within the town's urban confines. In New Zealand, mines are dealt with by the regional councils under their district plans.<sup>176</sup> The extension proposal involved a significant increase in the area and depth of the existing pit. Waihi Gold Company's expert witnesses gave evidence about operating risks, residual risks following rehabilitation and management of those risks. Dr Bowden's evidence related to how those risks could be addressed, firstly through the calculation of a bond during operations (ie, equivalent to the Queensland system of financial assurance or financial provisioning), and then, upon surrender of the mining lease, when the bond was to be released, how this could be replaced by a capital sum secured by a 'capitalisation bond' and the land vested in a trust. This was in a situation where very little of the land was proposed to be converted to any economically productive post-mining land uses, although the area used for the process plant was proposed to be converted to rural pasture and the water treatment plant was proposed to be transferred to the trust and continue to be operated. The pit itself was proposed to be filled with water as a lake, with a walkway and fencing. Consequently, the land being transferred to the trust would essentially be a perpetual liability, rather than being a net asset.

The financial arrangements agreed between the Council and the Waihi Gold Company were accepted by the Court, subject to a relatively minor adjustment to the quantum (a 'rounding up' of the calculated figure of \$5.613m to \$6m). One objector, Coromandel Hauraki Advocates Inc,<sup>177</sup> contested these financial arrangements, partly on the basis that the calculations were alleged to be too lenient and partly by challenging the overall concept that mining companies should be able to hand over their responsibilities and 'walk away'. However, this objector did not actually lead any expert evidence to challenge Dr Bowden's calculations based on the RISQUE model in any material respect.<sup>178</sup> Instead, this NGO simply led evidence from lay witnesses to the effect that there had been mine disasters in other places around the world, with examples in places such as Guyana and the Philippines. The judge painstakingly reviewed all of these examples but concluded that they were of 'limited relevance' or bore 'no useful comparison' to a mine which the expert evidence on engineering design, geochemistry, hydrogeology and water quality, demonstrated had completely different engineering designs, practices and geology.<sup>179</sup>

The clear lesson for the Queensland Government in this judicial analysis is the value of obtaining serious specialist expert advice when assessing residual risk, so as to provide reasonably defensible support when calculating the financial contribution required from the mining company upon surrender. It is clear from the KPMG report cited above, that this lesson has not been lost on the Queensland Government and so we expect to see more about this in the *Residual Risk Discussion Paper* that is proposed to be released in the second quarter of 2018. Similarly, it is noted that the judge did not accept the NGO's contention that there was a problem with the company being able to surrender its mining licence following rehabilitation, lodge a capital contribution and 'walk away'. The Queensland Government has yet to provide this certainty to investors in the Queensland mining industry, who, as discussed above, are still

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<sup>175</sup> *Waihi Gold Co v Walkato Regional Council*. [1998] NZEnvC BC9868000, 15 December, 1.

<sup>176</sup> In this instance, the Walkato Regional Council was the primary consent authority, but Hauraki District Council was also involved because of works on some nearby roads.

<sup>177</sup> This NGO is specifically an anti-mining activist 'umbrella' organisation. Coromandel Watchdog, "About us," accessed 15 March, 2018, <https://www.watchdog.org.nz/about-us/>.

<sup>178</sup> *Waihi Gold Co v Walkato Regional Council*, [1998] 37.

<sup>179</sup> *Waihi Gold Co v Walkato Regional Council*, [1998] 34.

at risk from the Chain of Responsibility legislation, even after having lodged a residual risk payment and surrendered their mining leases and associated approvals.

Although the calculation methodology for the capitalisation bond was not set out in the judgment, it is explained in detail in Chapter 15 of the book.<sup>180</sup> After obtaining expert evidence on the site-specific risks, the RISQUE Model involved working out a quantum based on:

- Post-closure operating costs;
- Insurance premiums to cover insurable events, that is, the risk of sudden failure events;
- A component for uninsurable events (the risk of gradual events such as seepage that are effectively uninsurable by third party insurers).

The next step was to work out how to calculate these costs for ‘perpetuity’, which involves calculating the time value of money, taking into account the compounding of interest on an investment. Due to the effect of compounding interest, the investment required today to fund one year of mitigation of an uninsurable event in the future becomes progressively smaller as the term of the investment increases. This means that, based on an assumed interest rate for an investment, it is possible to calculate the time when a fund will become self-sustaining.<sup>181</sup> Working back from this, it is possible to calculate the fixed capital sum that is required from the mining company upon surrender, so that it is acceptable for a company to ‘walk away’, that is, cease to be liable for the rehabilitated land, which, as has been discussed throughout this paper, is the critical economic incentive for companies to rehabilitate and surrender land for post-mining land uses earlier. For example, using a return rate of 4%pa on an investment, ‘perpetuity’ can effectively be defined as just 100 years. For the insurance component, financial modelling is able to calculate a sum equivalent to the annual insurance premiums that would be expected to be paid realistically, to cover the risk of sudden events, and then work back from this again, by taking into account the interest rate on a capital sum to cover these insurance premiums.

A critical component of the RISQUE Model is that the actuarial and financial aspects of this calculation are undertaken by an experienced and expert risk assessor, relying on the expert advice of the various experts in disciplines relating to the site-specific risks. The calculation work is not undertaken by a generalist environmental regulator that has no expertise in these disciplines and particularly not in any financial or actuarial discipline.

However, the Martha Mine scenario was reactive to an extension application within an existing legal framework. The Queensland Government has the opportunity to make several improvements, when re-designing a framework for assessing residual risk for the State-wide mining industry. In particular:

- Martha Mine was, at the time of the extension application, a long-established existing mine on a highly constrained site largely within urban limits, and consequently with limited opportunities for creating economically productive post-mining land uses. This is why the proposed land tenure solution post-closure was to create a trust. In effect, the trust would be paid to take responsibility for perpetual liabilities, not for a net asset. It is obviously not an ideal solution for post-closure mined land to become a net liability rather than a net asset. Therefore, when creating a new State-wide legislative framework for addressing residual risk, the trust solution would be one element of the Martha Mine case not to copy. Indeed,

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<sup>180</sup> Adrian Bowden, Malcolm Lane, and Julia Martin, “Indemnity in Perpetuity: Mining, New Zealand,” in *Triple Bottom Line Risk Management: Enhancing Profit, Environmental Performance, and Community Benefits*, (New York: Wiley, 2001).

<sup>181</sup> Bowden, Lane and Martin, “Indemnity in Perpetuity.”

there is no suggestion that the Queensland government does propose to adopt this aspect of the Martha Mine solution.

- In contrast with the position at Martha Mine, where Queensland land is being rehabilitated for economically productive post-mining land uses such as grazing, normally the freehold land owned by the mining company is intended to be sold privately. If the commercial value of the land to a purchaser outweighs the depreciation resulting from any residual constraints, the mine should be able to sell the land for a commensurate market price. In the analogous situation where urban land that has been operated for a 'notifiable activity' (ie, an activity that is capable of causing contamination to the land) and is proposed to be sold to a developer, the developer factors in the cost of either carrying out further remediation to remove the contamination or managing the site within the constraints caused by the contamination, without the need for the government to impose a 'residual risk payment' upon the vendor and then require the purchaser to beg part of this residual risk payment back from the government, for the purchaser to manage his or her own property. Similarly, leaving aside any off-site risks which can be addressed through financial provisioning worked out in accordance with the RISQUE Model, any residual risks that constrain only the land itself (such as fencing requirements) should be capable of being managed by the new landholder in accordance with a mechanism similar to a site management plan, on the basis of a reduction in price worked out directly between vendor and purchaser and without government intervention. It would be likely to be particularly repugnant to future private landholders who are carrying out additional work at their own cost (such as re-shaping of landforms to mitigate erosion risks) for the purpose of redevelopment not foreseen by the mining company, if government then withholds residual risk payments received from the mining company in respect of operating costs that will no longer be necessary once the redevelopment is successfully carried out. To put it another way, the Martha Mine solution was a good solution to the position of perpetual net liability, but not to net commercial gain. There is considerably less justification for a prescriptive 'command and control' or approach to the money allocated for the future landholder's management of the next land use (ie, essentially, the component identified in the RISQUE Model as 'post-closure base costs', and calculated at \$549,000 for Martha Mine), if future land uses are for commercial gain, operated privately and are not permanently set in stone by what the mining company originally predicted in its plan.
- It is worth noting that operations did not go to plan at Martha Mine, after the landmark extension case in 1998. Bollard J noted (at page 8) that the mine extension was intended to extend the life of the mine from 2000 to 'about the year 2007'. In fact, operations were continuing when the historic pit suffered from two significant slips, in 2015 and 2016, the latter and largest bringing down more than 2 million tonnes of the North Wall, blocking access and partially filling the bottom of the pit. Note that these were pre-closure events, not post-closure and not post-rehabilitation. Consequently, it has been the responsibility of the mining company to attend to stabilisation works, not the responsibility of the future trust. However, the risk of these substantial slips was not forecast in 1998. Reportedly, as at September 2017, it had already cost the mining company (now Oceania Gold, not the same holders as at the time of the extension case) about \$NZ4.1 million in stabilisation work. Oceana Gold geotechnical engineer Liam Ireland has stated<sup>182</sup> that historic underground works and weakness in the actual rock structure had contributed to the failure. It was also

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<sup>182</sup>At the New Zealand branch of the Australian Institute of Mining and Metallurgy annual conference, as reported by Simon Hartley. Simon Hartley, "Time will tell at Waihi Mine," *Otago Daily Times*, 15 September, 2017, <https://www.odt.co.nz/business/time-will-tell-waihi-mine>.



undermined by periods of heavy rain. The top of the North Wall slip was just 40m from a public road (but the company did give timely warning of the likelihood of the slip). It is fortunate that, at the time of deciding to carry out the substantial stabilisation works, Oceana still wanted to resume mining in the historic pit affected by the slips, given there was an estimated 80,000oz of gold still below the pit's bottom. Overall, the mine has an estimated further 570,000oz of gold to be mined and mine life beyond 2019.<sup>183</sup>

- For the purposes of designing Queensland's residual risk assessment framework, it is simply noted that, even with the best possible expertise involved in assessing the risks, if the experts do not have access to all of the relevant background facts at the time, some risks may be missed, under-estimated, or indeed over-estimated. Also, for some types of issues, there may not even be sufficient previous examples elsewhere for an expert to be able to give a definitive opinion and the best that can reasonably be expected is an educated 'guesstimate'. If the Queensland government plans to engage experts on whom both the government and its third party insurers will rely for peer reviewing reports submitted by the company's experts, the government's experts will need adequate indemnification from professional liability.
- If there is a pooled fund for post-surrender residual risk, the fact that some site-specific risks will have been over-estimated or under-estimated will not matter as much, provided that best efforts are made to estimate accurately, because this should average out over time.

### 3. Canada – Historic uranium mines and the Institutional Control Program in Saskatchewan

Another example of a government that has adopted an approach similar to the RISQUE model of residual risk calculation developed by Bowden, Lane and Martin is the Province of Saskatchewan in Canada. In Saskatchewan, during the operational phase of a mine, rehabilitation is secured by a contribution or security instrument provided to the Assurance Fund. Following cessation of mining, decommissioning and reclamation, there is a specific period of 'transition phase monitoring', which is also secured by financial assurance. Following this phase, the company can apply for release of its mining licence and if accepted, this releases the company from further monitoring or maintenance responsibilities and from financial assurance.

For mine and associated mill sites that are located on provincial Crown land,<sup>184</sup> upon completion of the transition phase monitoring, the company may apply to transfer the site to the Institutional Control Program, in which case the land is held as provincial Crown land under the *Reclaimed Industrial Sites Act 2006*. If accepted, the provincial government accepts responsibility for ongoing monitoring and maintenance. In order to be accepted into this program, the mine holder must make deposits into funds.<sup>185</sup>

<sup>183</sup>Hartley, "Time will tell at Waihi Mine."

<sup>184</sup>Ministry of Energy and Resources, *Institutional Control Program: Post Closure Management of Decommissioned Mine/Mill Properties Located On Crown Land in Saskatchewan*, December, 2009, <http://publications.gov.sk.ca/documents/310/97752-RISADiscussionPaperDec09.pdf>. It is proposed to extend this program subsequently, so that sites not located on provincial Crown land, but on private land, will be able to be transferred to the Crown and included in the ICP, including non-mining industrial sites.

<sup>185</sup>K Cunningham et al., "Post-closure management of mine sites in Saskatchewan," *AusIMMbulletin*, June, 2015, <https://www.ausimmbulletin.com/feature/post-closure-management-of-mine-sites-in-saskatchewan/>.

- (a) The Institutional Control Monitoring and Maintenance Fund (ICMMF). This contribution is calculated on a site-specific basis based on an assessment of the residual risks. As was the case with Martha Mine in New Zealand, the contribution is based on the 'net present value' of the estimated future costs, taking into account assumed investment return rates.
- (b) The Institutional Control Unforeseen Events Fund (ICUEF), which have fixed thresholds:
  - In the case of a closed site without tailings or engineered structures, this amount should be 10% of the deposit paid into the ICMMF.
  - In the case of a closed site with tailings or engineered structures, this amount should be 20% of the deposit paid into the ICMMF.
- (c) Only during the establishment period for the pooled fund - an additional assurance fund to address the 'maximum failure event' for the site. (However, once the ICUEF has reached a sufficient level, the additional assurance fund is no longer required.)

The relative sophistication of this system, compared with other jurisdictions, was noted favourably by the Hazelwood Mine Fire Board of Inquiry (2015) at paragraph 3.10 in '*High-level Assessment of Alternative Rehabilitation Financial Mechanisms*'.

However, again, it should be noted that there are some differences between the practical circumstances experienced in Saskatchewan, compared with normal coal mine rehabilitation in Queensland. While Saskatchewan does have a history of coal mining dating back to the mid-19<sup>th</sup> century, Saskatchewan also has a substantial uranium mining and milling industry. As at the date of this paper, all of the decommissioned and released mines recorded on the Institutional Control Registry Report were uranium mines, with the exception of one small gold mine (and associated processing facility).<sup>186</sup> Saskatchewan has planned revisions to its legislative framework for these ICP sites, to enable transfer to a third party company, together with the liability and funding.<sup>187</sup> Although the company is released from any ongoing rehabilitation and monitoring requirements, the company's payment into the ICP funds does not result in a release from broader environmental liability under the *Environmental Management and Protection Act*. Unfortunately, this means that the company's only options to remove contingent liability from its books would be liquidation or removal from the jurisdiction. While it is understandable that the Saskatchewan government may lack confidence in its own calculations of residual risk (which would be an apparent reason for trying to reserve its rights in perpetuity to claim more funds),<sup>188</sup> it is easy to envisage unintended consequences of such a legislative

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<sup>186</sup> Government of Saskatchewan, *Institutional Control Registry – Report*, April, 2012, <http://www.publications.gov.sk.ca/details.cfm?p=84332>.

The 5 year report notes that: "As of March 31, 2017, no additional sites have been accepted into the Program since the 2012 report. The ministry is reviewing applications for 14 properties and approval is anticipated in 2017. A total of six sites are in the Program: one decommissioned gold mine (Contact Lake), and five decommissioned uranium mines (Beaverlodge)." The Ministry of the Economy, *Institutional Control Report*, 2017, <http://publications.gov.sk.ca/details.cfm?p=85594>.

<sup>187</sup> The Ministry of Economy, *Institutional Control Report*. Canada Mining Innovation Council, Pre-Feasibility Report of the ESI Closure Working Group. These planned amendments are also mentioned by the Saskatchewan Government.

<sup>188</sup> As an example, the Gunnar uranium mine operated from 1955 to 1963 and was abandoned in 1964. In 2006, the federal and provincial governments signed a memorandum of agreement to split the cost of cleaning up the mine, estimated at \$24.6 million. Over the next nine years, the price tag ballooned to more than a quarter of a billion dollars. Alex Macpherson, "Abandoned mine cleanup project poses a 'deep moral problem,'" *Saskatoon*

scheme, for example, it would tend to be more attractive to smaller companies that are more readily able to liquidate or flee the jurisdiction upon release, which would not appear to be ideal. A better approach would be to carry out a more thorough expert assessment upfront.

For Saskatchewan's lignite (a type of coal) and potash mining industries, it is clearly not the provincial government's aim to be creating a network of decommissioned sites that carry perpetual net liabilities, needing to be managed in perpetuity by the Crown. It is the historic uranium mine sites (which may include mills) where it has been found not to be practicable to avoid post-closure Crown monitoring and maintenance in perpetuity.<sup>189</sup> The first location to be released from its mining licences and listed on the register was the Beaverlodge complex, which was originally operated by a Federal Crown corporation beginning in 1943, then merged with the Crown-owned Saskatchewan Mining Development Corporation to become Cameco, with the federal government retaining environmental liability, through its Crown corporation, Canada Eldor Inc. Against this government-owned corporate history, it seems hardly surprising that the government found a way to release the mining licences and transfer perpetual monitoring and maintenance responsibilities to another government-owned entity.

For other mines, the Saskatchewan government has made clear its objective for progressive rehabilitation to convert mined land as quickly as reasonably practicable to a variety of economically productive post-mining land uses that can be carried on post-surrender by private operators, not by the government. This is achieved through requiring decommissioning and reclamation plans under Section 12 of the *Mineral Industry Environmental Protection Regulations 1996*, secured by a contribution or security instrument for the assurance fund under Section 15. These plans are reviewed every 5 years and upon cessation of extraction. The Saskatchewan Government's guidelines for determining post-mining land use '*recognize the importance of the complete range of land types and land uses in the province, and does not require that all mined lands be restored to a particular use*'.<sup>190</sup> Saskatchewan is a largely rural province, so particular attention is given in the guidelines to cropping land, for example: '*In general, agricultural land should be reclaimed, at a minimum, to a soil quality that is similar to that which existed prior to mining.*' However, it is noted that: '*only previously cultivated land with relatively good capability for agriculture... should be reclaimed for crop production. Previously cultivated land with poorer soil capability should be reclaimed to pastureland or native vegetation.*' If the land is not simply being restored to its prior land use, then, '*if available, the proponent should consider any land use plans for the area when formulating the end use objectives*'.<sup>191</sup>

It should be noted that Saskatchewan has not always had this focus on progressive rehabilitation. Dating back to the 19<sup>th</sup> century, lignite mining in this province used to be normally

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*StarPhoenix*, 14 January, 2017, <http://thestarphoenix.com/business/mining/abandoned-mine-cleanup-project-poses-a-deep-moral-problem>.

<sup>189</sup>Cluff Lake was a particularly notorious example of radiation contamination. In 1998, The Atomic Energy Control Board (AECB) issued a scathing assessment of the holder's management and operation of this site, issuing a direction that the mine must close if its management was not corrected. WISE Uranium Project, "Issues at Cluff Lake Uranium Mine, Saskatchewan, Canada," *World Information Service on Energy*, 7 February, 2002, <http://www.wise-uranium.org/umopclf.html>.

<sup>190</sup>Ministry of Environment, "Reclamation and Approvals Guidelines," *Government of Saskatchewan*, October, 2007, <http://publications.gov.sk.ca/documents/66/95518-Reclamation%20and%20Approvals%20Guidelines.pdf>.

<sup>191</sup>Ministry of Environment, "Northern Mine Decommissioning and Reclamation Guidelines," *Government of Saskatchewan*, November, 2008, <http://publications.gov.sk.ca/documents/66/96788-Northern%20Mine%20Decommissioning%20and%20Reclamation%20Guidelines.pdf>.

underground. Stockpiles used to be left where they were and shafts were simply abandoned. Consequently, Saskatchewan has a substantial program for remediating unsafe historic shafts, and in some more remote areas, the first task is just to locate where these abandoned mine shafts might be.<sup>192</sup> However, lignite is relatively abundant in Saskatchewan at depths that make strip mining reasonably feasible. In 1993, Saskatchewan released its former *Reclamation and Licensing Guidelines for Saskatchewan Strip Mined Coal Lands*. After this it became normal for the topsoil and overburden to be retained as each strip was excavated, so that this could be used for progressive rehabilitation as the next strip was excavated.<sup>193</sup> This method of mining is obviously not suitable in places where coal seams are located at deeper levels.

For Saskatchewan's more recent lignite and potash mines, the fact that strip mining is feasible means that the physical aspect (but not necessarily the economic aspect) of progressive rehabilitation for economically productive land uses such as cropping and grazing has been successful, often achieving productive farmland 2-3 years post-extraction. Examples of crops re-established on mined land include cereals and forage crops.<sup>194</sup> Other examples include grazing pasture and forestry. However, the authors have not been able to locate any instances of this progressively rehabilitated land that have actually been released and transferred to private landholders such as farmers and graziers, which would surely be the best indicator as to whether the land has fully been restored to its intended post-mining economic purpose. This still appears to be the missing piece of the puzzle in Saskatchewan.

It is unlikely that the Queensland coal industry would have much in common with the post-closure risks of the Saskatchewan uranium mining and milling industry that was established in the 1950s and 1960s. Strip mining is also not feasible for most Queensland mines, meaning that the exceptionally rapid progressive rehabilitation expectations of Saskatchewan are not readily convertible to Queensland. However, at least Saskatchewan does provide a precedent and a body of experience with calculating residual risk and also with Crown land monitoring and maintenance, for decommissioned mines that present a perpetual net liability. In Queensland, the aim should be that such mines would be in a small minority, not the normal position.

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<sup>192</sup> CBC News Saskatchewan, "Abandoned coal mines a concern in southeast Sask," *CBC News*, 20 March, 2015, <http://www.cbc.ca/news/canada/saskatchewan/abandoned-coal-mines-a-concern-in-southeast-sask-1.3002809>.

<sup>193</sup> Saskatchewan Energy and Mines, "Coal in Saskatchewan," *Saskatchewan Energy and Mines Misc. Report 95-10*, December, 1994, <http://publications.gov.sk.ca/documents/310/8802-MiscRep95-10.pdf>.

<sup>194</sup> Saskatchewan Mining Association, "Environment Mining... Great for Saskatchewan," May, 2014, [http://www.saskmining.ca/uploads/general\\_files/24/sma\\_environment-fact-sheet-2014.pdf](http://www.saskmining.ca/uploads/general_files/24/sma_environment-fact-sheet-2014.pdf).

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