Rhetoric Vs Reality

A 'snap shot' of progressive rehabilitation performance in the global mining industry

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A 'snap shot' of progressive rehabilitation performance in the global mining industry

The mining industry would have the Australian public, investors and governments believe it is committed to progressive rehabilitation in order to satisfy public expectations, regulatory requirements and reduce business costs and risks;

"Companies are careful to avoid disturbing land unnecessarily and to minimize the footprint of operations. This reduces the scale and complexity of rehabilitation requirements, and lowers the cost to companies. Furthermore, rehabilitation is undertaken not only at the end of a mine's life, but progressively during the mining process. This enables companies to meet rehabilitation obligations and minimize risk over the life of the operation." [1]

However the "performance snap shot" contained in this analysis suggests otherwise.

From a business risk/cost perspective it makes sense to invest in maximising progressive rehabilitation in order to reduce the cost of rehabilitation at the end of the mine's life. Investment in progressive rehabilitation also reduces the technical risk as investment in trials and research and 'learning by doing' during operational life reduces the chance of failed rehabilitation which can lead to expensive reworking, extended timeframe to relinquishment or in the worst case a perpetual liability. All the companies covered in this snapshot subscribe to this view at least in terms of what is on their web-sites.

The value of maximising progressive rehabilitation during the operational life of a mine is illustrated when the reasons for mine closure are fully analysed. According to the Minerals Policy Institute's recent analysis[2] of abandoned mines in Australia, between 1981 and 2009 only 25% of mine closures were planned, "*the remaining 75% were either premature or unplanned closures resulting in unsatisfactory closures, mines left in care and maintenance or simply abandoned with no attempt at formal closure of any kind. Whichever is the case, each mine adds to Australia's growing mining legacy.*" [3]

Figure 1. shows the reasons for closure and demonstrates that 39% of mine closures were caused by economic factors (e.g. costs, receivership and markets). Another 41% were the result of resource issues (i.e. technical issues, low grades, metallurgical issues). Less frequent were closures due to regulatory intervention (3%), company strategy (4%), environment and floods (4%) and safety (2%).[5]

The failure of regulators to enforce the maximum progressive rehabilitation exposes both the share-holder and the taxpayer to increased costs and risk given the vast majority of mines closure well before their planned end of mine life. If, as we demonstrate, most mining companies take a minimalist approach to progressive rehabilitation leaving the majority of the rehabilitation effort to be delayed to absolutely "the last minute", then costs will have to be borne outside the operation's cash flow and the technical risks which can lead to expensive rework and delayed relinquishment are significantly increased.

The disingenuous nature of the industry's attempts to suggest that every step of the way progressive rehabilitation is maximised is exposed when the mining industry's core business model is fully understood.

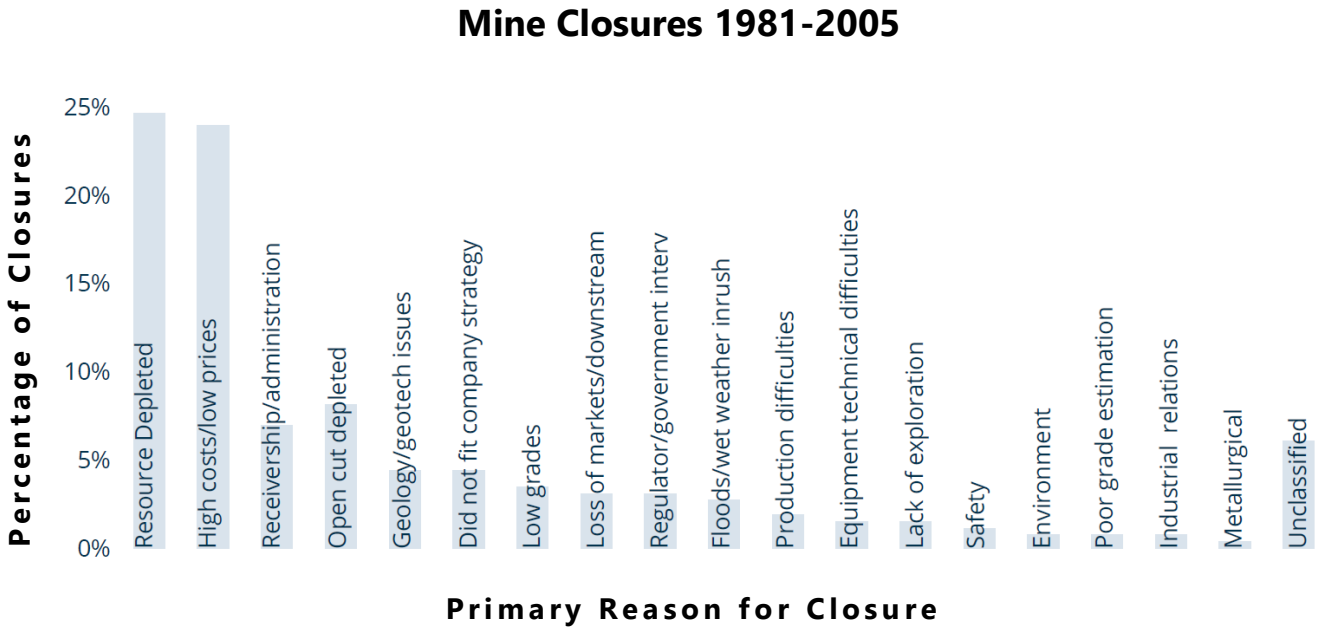

Figure 1. Australian mine closures 1981- 2005 showing the primary reason for closure (Source: Laurence, 2006).[4]

Mining is a cash-flow driven business. The huge upfront investment in building the mine and associated infrastructure drives management to maximize production and constantly reduce costs throughout the productive life of the asset. Any substantial investment in activities that do not maximize production or reduce costs are generally rejected unless they are considered a material risk.

Closure planning and progressive rehabilitation are generally regarded as distractions from the core business of cash flow maximisation. Mine closure and rehabilitation is also regarded as low risk due to compliant regulators and weak legislation characterized by poor enforcement and ambiguity that allows the industry the option to postpone progressive rehabilitation as long as possible, often more than a decade after closure, if ever.

In regards to timeframe, closure in most cases is seen as irrelevant to mine general managers and Chief Financial Officers whose tenure is generally 3 to 5 years in a context where mine closure is assumed to be decades away. This, coupled with the corporate employee incentives structure that rewards short term cost reduction and production maximisation to the exclusion of most other business activities (with the possible exception of workplace safety), means that progressive rehabilitation is not generally on management's radar.

However, Laurence's previously cited research illustrates that in the majority of cases these assumptions are false and the lack of investment in progressive rehabilitation elevates the total cost and risk associated with mine closure, possibly knowingly externalizing these costs from the private enterprise undertaking and benefitting from the mining activity.

Summary of Progressive Rehabilitation Performance

	Progressive Rehabilitation to Disturbance Ratio - FY 2015	**Explanatory Notes / Source**
Rio Tinto	15%	2015 Sustainable Development Report. There are contradictory figures in the 2015 report. The 15% figure is based on the performance data. In the Governance section of the same report Rio claims a figure of 26%.
BHP Billiton	28%	2015 Sustainable Development Report
Anglo American	15%	2015 Sustainable Development Report
Glencore	23%	2015 Sustainable Development Report

The "Big Four's" On-ground Performance

We selected Rio Tinto, BHP Billiton, Anglo American and Glencore for the snapshot given they are regarded as global leaders and all have significant investments in Australia.

Although some of the available information was patchy we believe we have presented a fair picture of the performance of these companies at the global level. All the information in this report is sourced from company annual sustainable development reports and other corporate sources.

Rio Tinto

"*We recognise that good performance in closure management enhances our reputation and enables us to maintain access to land and capital, to continue establishing new projects with the support of local communities...This planning work includes seeking sustainable and beneficial uses for the land when an operation eventually closes, and aims to minimise financial, social and environmental risks after closure.*"[6]

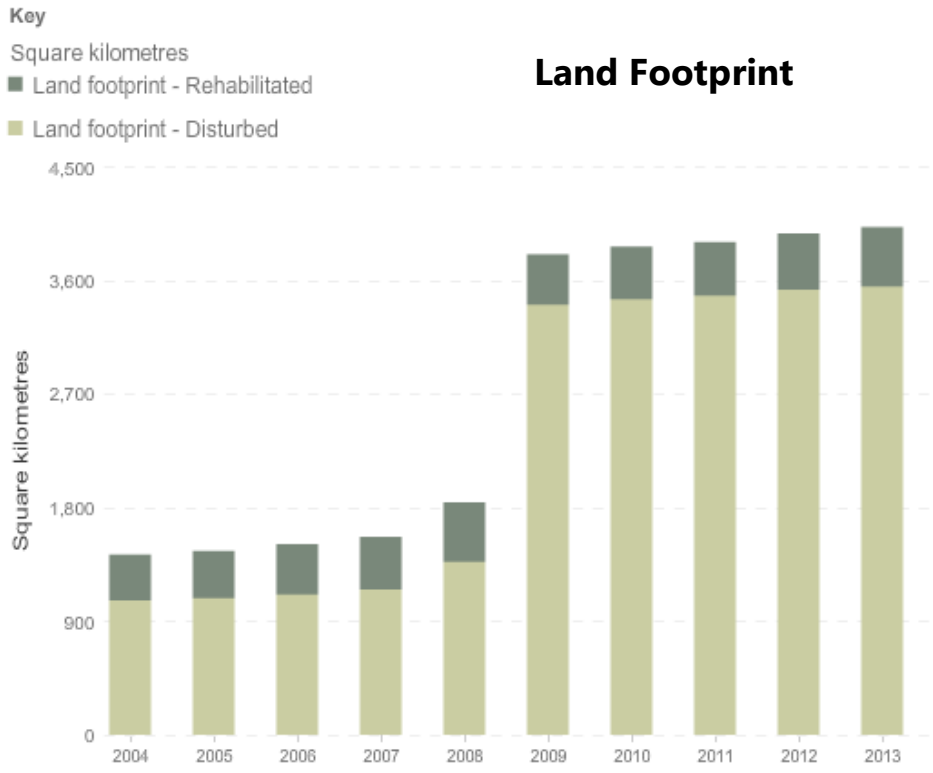

Figure 2. Land Footprint, Rio Tinto 2013 Sustainable Development Report[7]

Rio Tinto claims: "*By the end of 2013, **25%** of our disturbed land (excluding land disturbed for hydroelectricity dams) had been rehabilitated".* [8]

However, compared to performance data on page 104 in the same report citing a rehabilitated land total of 472 km2 against a disturbed area of 3556km2, the percentage rehabilitated is just over **13%**.

"*By the end of 2014, 26 per cent of our disturbed land (excluding land disturbed for hydroelectricity dams) had been rehabilitated."* [10] However this percentage contradicts the data in the Figure 3. which puts the figure just under 14 per cent.

"*All Rio Tinto businesses must plan for closure from the earliest stages of project development. This planning is intended to minimise financial, social and environmental risks when the operation eventually closes…We aim to progressively rehabilitate land as we operate at a mine site. We test and confirm rehabilitation methodologies, control dust and erosion, and meet regulatory requirements* ."[11]

In 2015, Rio Tinto's total disturbed area equaled 3,629,000 hectares. Total rehabilitated area was 533,000 hectares,[12] or **15%** of the total. As with previous years, on page 5 in the Governance section of the same report, Rio Tinto claims, "*In 2015, **26%** of our disturbed land (excluding hydroelectricity dams) had been rehabilitated.*"[13]

Rio Tinto consistently includes contradictory data relating to progressive rehabilitation in their sustainability reports.

Figure 3. Land Footprint, Rio Tinto 2014 Sustainable Development Report[9]

BHP Billiton

"*The rehabilitation of land no longer required for our activities continues to be a central part of our approach to managing our effects on land. In 2007, we established a target of achieving a 10% improvement in the land rehabilitation index (the ratio of land rehabilitated to land disturbed). We did not achieve our land rehabilitation target due to the growth of some of our operations and the challenges associated with progressive rehabilitation while an operation is active.*"[14]

"*The rehabilitation of land no longer required for our activities continues to be a central part of our approach to managing our impacts on land and biodiversity. We require our Businesses to maintain rehabilitation plans that support life of asset and closure plans. This includes rehabilitating disturbed areas which are no longer required for our operational purposes, consistent with the pre-disturbance land use or alternate land use, while taking into account regulatory requirements and stakeholder expectations. As at FY 2014, our total land rehabilitated was* ***38,900 hectares***."[16]

Citing the figure of 38,900 hectares suggests BHP Billiton operations "*de-habilitated*" (that is re-disturbed areas of rehabilitation) an area of some 4,100 hectares during 2013/14.

"*A central part of our approach to managing our impacts on land and biodiversity is the rehabilitation of land no longer required for our activities. Our Businesses are required to maintain rehabilitation plans that support life of asset and closure plans. This includes rehabilitating disturbed areas that are no longer required for our operational purposes, consistent with the pre-disturbance land use or alternate land use, taking into account regulatory requirements and stakeholder expectations. As at the end of FY2015, our total land rehabilitated was 40,800 hectares, a 5% increase since FY2014 on the total* area rehabilitated."[17]

This "*5% increase*" does not make up for the "*de-habilitation*" that occurred in FY 2014. The BHPB 2015 Sustainability Report cites a total of 144,000 hectares of disturbed land against 40,800 rehabilitated hectares.

Total Rehabilitated and Disturbed Land

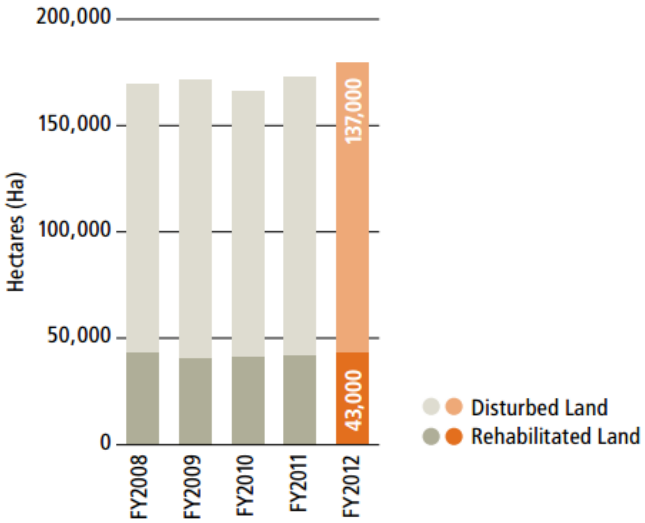

Figure 4. Total Rehabilitated and Disturbed Land, BHP Billiton 2012 Sustainable Development Report[15]

Anglo American

"One of our most important responsibilities is the rehabilitation of land to the post-mining land-use agreed with stakeholders. Our approach to rehabilitation management is increasingly integrated with other mine planning activities. Rehabilitating available land concurrently results in significant financial and environmental benefits and can reduce closure liabilities. Anglo American has 1,657,917 hectares of land under its management control (2014: 1,676,453 hectares), of which 124,754 hectares have been disturbed by mining, processing, mineral-waste disposal, and supporting infrastructure (2014: 113,097 hectares). By the end of 2015, 18,479 hectares of that disturbed land had been rehabilitated (2014: 18,107 hectares)."[18]

No graphical representation of disturbed land (124,754ha) to that rehabilitated (18,479) were included in Anglo's 2015 Sustainable Development Reports.

Glencore

"We require each individual asset to have a closure plan to ensure a responsible exit. This plan must be continuously maintained, including appropriate financial provisions. Our assets develop their closure plans in collaboration with their local communities and ensure that they monitor the societal risks and opportunities associated with closure.

In addition, our mining assets continually rehabilitate the areas they disturb, ensuring that the land is restored to a state that is suitable for the final land use agreed in the original mining permit. Each asset creates a comprehensive management plan before operations begin, which identifies each year's success factors and ensures they can be measured and monitored regularly." [19]

Glencore: Land Disturbed vs Land Rehabilitated 2013-2015

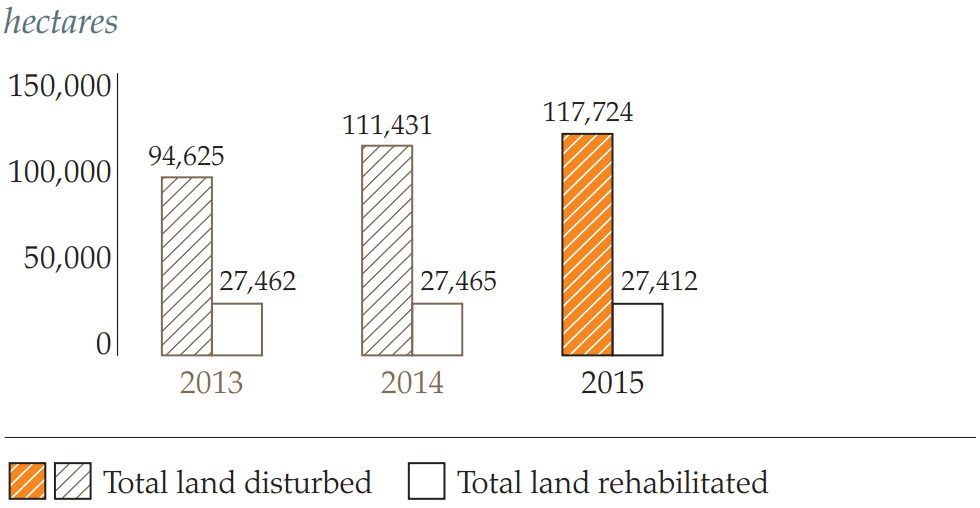

Figure 5. Land Disturbed vs Land Rehabilitated, Glencore 2015 Sustainable Development Report [20]

Summary

Maximising progressive rehabilitation throughout the operating life of the mine reduces both the environmental and financial risks. As the industry repeatedly points out, there is a strong and compelling business case to invest in progressive rehabilitation. This investment reduces the cost of closure when the cash flow begins to dry up at the end of the mine's life and reduces the inherent risk associated with mine site rehabilitation and relinquishment.

However as this report demonstrates, the industry consistently ignores this business case instead pursuing the maximization of cash flow in the short-term at the expense of prudent management of its long-term closure risk and the associated negative impact on shareholder value. We do not believe this is an "either or" situation. Maximising investment in progressive rehabilitation does not necessarily mean a signifi-cant impact on cash flow. Indeed, "best in class" operations demonstrate that maximizing progressive rehabilitation can be achieved through optimizing the life of mine plan and the utilization of personnel and equipment. Failure to invest in progressive rehabilitation has more to do with a misguided "dash for cash" in part driven by poorly designed executive incentive schemes and poor planning and management at the site level rather than a flawed business case.

Analysts and investors need to take a greater interest in the sector's progressive rehabilitation performance because investment in mine rehabilitation during the mine's operating life is a key strategy in regards to protecting and growing shareholder value in the medium to long-term.

Beyond the financials, excellence in mine site rehabilitation protects and enhances the company's social licence to operate, thus protecting future access to land and resources which underpins the industry's future growth.

References

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2 Roche, C. and Judd, S. (2016) Ground Truths: Taking Responsibility for Australia's Mining Legacies, Mineral Policy Institute, pp. 6-7.
3 Minerals Policy Institute, June 2016, 'Ground Truths: Taking Responsibility for Australia's Mining Legacies'
4 Ibid
5 Ibid
6 Rio Tinto 2013 Sustainable Development Report, p.6.
7 Rio Tinto 2013 Sustainable Development Report, p.53.
8 Ibid
9 Rio Tinto 2014 Sustainable Development Report, *Environment*, p.15.
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11 Rio Tinto 2015 Sustainable Development Report, *Governance*, p.5.
12 Rio Tinto 2015 Sustainable Development Report, *Performance*, p.6.
13 Rio Tinto 2015 Sustainable Development Report, *Governance*, p.5.
14 BHP Billiton 2012 Sustainable Development Report, p.23.
15 BHP Billiton 2012 Sustainable Development Report
16 BHPB 2014 Sustainable Development Report, p.31.
17 BHPB 2015 Sustainable Development Report, p.38.
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20 Ibid

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