



EDOs of Australia

Inquiry into the rehabilitation of mining and resources projects as it relates to Commonwealth responsibilities

13 April 2017

EDOs of Australia (formerly ANEDO, the Australian Network of Environmental Defender's Offices) consists of eight independently constituted and managed community legal centres located across the States and Territories.

Each EDO is dedicated to protecting the environment in the public interest. EDOs:

- provide legal representation and advice,
- take an active role in environmental law reform and policy formulation, and
- offer a significant education program designed to facilitate public participation in environmental decision making.

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Introduction

Environmental Defenders Offices of Australia (**EDOA**) welcomes the opportunity to provide input to the *Inquiry into the rehabilitation of mining and resources projects as it relates to Commonwealth responsibilities*.

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- provide legal representation and advice,
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Given our specific expertise, our comments to this Inquiry focus on the application of the regulatory framework that supports rehabilitation of mining and resources projects, as it relates to Commonwealth responsibilities. These comments are provided primarily in response to the following Terms of Reference (**ToR**):

- a. the cost of outstanding rehabilitation obligations of currently operating projects;
- b. the adequacy of existing regulatory, policy and institutional arrangements to ensure adequate and timely rehabilitation;
- c. the adequacy and transparency of financial mechanisms, including assurances, bonds and funds, to ensure that mining and resources projects are rehabilitated without placing a burden on public finances;
- d. the effectiveness of current Australian rehabilitation practices in safeguarding human health and repairing and avoiding environmental damage;
- e. the effectiveness of existing abandoned mines programs, with regard to repairing environmental damage and safeguarding human health;
- f. whether any mining or resources companies have engaged in conduct designed to avoid fulfilling their rehabilitation obligations;
- i. international examples of effective rehabilitation policy and practice; and
- j. proposals for reform of rehabilitation of mining and resources projects.

A. The cost of outstanding rehabilitation obligations of currently operating projects

There are a large number of environmental and social costs associated with incomplete or inappropriate mine rehabilitation.¹ These risks include, but are not limited to:

- permanent impacts on surface and groundwater pathways and availability;
- changes to water quality including increased salinity, particularly in final voids but also as groundwater recovers within the post-mining landscape; increased acidity and toxicity through Acid Mine Drainage where the weathering of sulphide minerals increase the acidity in the water, potentially dissolving toxic heavy metals; and flooding of final voids;
- failure to restore pre-existing and/or productive landscapes creating biodiversity and agricultural impacts;
- safety risks of high walls in mines which are usually surrounded by fences requiring ongoing maintenance creating a perpetual burden on future landowners; and
- societal costs associated with disrupted communities and a legacy of environmental impacts.

To our knowledge, there is currently no central repository of information on the cost of outstanding rehabilitation obligations of currently operating projects. Different states and territories have different levels of transparency regarding the estimated cost of rehabilitation. This cost is most often estimated as part of generating bonds and financial assurances required by mining and resource project proponents (see our response to ToR C).

There is an urgent need for increased transparency around financial reporting of rehabilitation liabilities. This should include both present rehabilitation liabilities and total projected closure costs for each mine.

¹ The potential long-term environmental impacts of mine voids in particular are summarised in Walters, A. (2016) *The Hole Truth* Energy & Resource Insights, available at: <http://erinsights.com/research/hole-truth/>.

B. The adequacy of existing regulatory, policy and institutional arrangements to ensure adequate and timely rehabilitation

Based on our analysis, the existing regulatory, policy and institutional arrangements are demonstrably inadequate to ensure adequate and timely rehabilitation of mine and resource project sites. Recent research into revegetation components of Australian mine site rehabilitation² found that:

...a number of mines are yet to embark on any sustained program of rehabilitation and there is a disappointing number of cases of mines ceasing operations before rehabilitation is completed leaving sites in a badly degraded state. Overall there appear to be surprisingly few examples in Australia of postmining rehabilitation that has reached a successful conclusion...

(We) conclude that problems have arisen because of (i) the inherently difficult task of restoring ecosystems at highly modified mine sites, (ii) institutional and management weaknesses and (iii) loose regulatory frameworks that allow a high level of company self-regulation.

Every state and territory has a legacy of historical mining projects that have failed to deliver an effective rehabilitation outcome (see our response to ToR E). While current legal frameworks have attempted to reduce the risk of future legacy issues, their efficacy has yet to be demonstrated. Future risks include:

- ongoing weakening of laws to protect biodiversity, including native vegetation, and which will exacerbate loss of threatened species and ecological communities;
- the large degree of flexibility in deciding what constitutes adequate and timely rehabilitation the varying scope of rehabilitation requirements;³ and;
- the use of completion requirements that rely on trajectory of recovery, rather than actual recovery.⁴ This means rehabilitation outcomes remain uncertain, particularly for matters such as groundwater and biodiversity.

For example, in NSW liability under the *Environmental Planning and Assessment Act 1979 (NSW)* and the *Mining Act 1992 (NSW)* is extinguished and the rehabilitation bond is returned when the mine operators fulfil the conditions of approval. These rehabilitation conditions are often superficial, frequently based

² Lamb, D., Erskine, P. and Fletcher, A. (2015) *Widening gap between expectations and practice in Australian minesite rehabilitation* Ecological Management & Restoration 16:3

³ For example, approval conditions for projects in Queensland regularly fail to include requirements to rehabilitation groundwater impacts and many projects are still being approved with large final voids and pit lakes.

⁴ There is an apparent reluctance from decision makers to require that mining and resource project proponents are responsible for rehabilitation until a site achieves a new stable equilibrium, particularly in relation to groundwater. Instead rehabilitation completion criteria often focus on the initial stages of rehabilitation such as finalising landforms and undertaking revegetation or the trajectory of groundwater recovery, rather than ensuring long-term stability in groundwater and surface water regimes or full ecological restoration. Consequently any financial assurances or bonds for rehabilitation are likely to be returned to the proponent and their obligations retired, despite that fact that biophysical rehabilitation is incomplete. Should the rehabilitation fail or deviate from its initial trajectory, the burden of rectifying the problems that arise then become a community and government responsibility.

around a safe and stable landscape and initial revegetation work. There is no requirement for operators to maintain a rehabilitation liability until rehabilitation is complete, which in relation to groundwater which can take hundreds, or even thousands, of years.

As noted in the EDO NSW submission to the *Submission on the Draft NSW Biodiversity Offsets Policy for Major Projects*:⁵

Evidence given in Hunter Environment Lobby v Minister for Planning & Ashton Coal Operations Limited (Ashton) demonstrated that there is no certainty that reconstructed landscapes can be returned to the same structural, hydrodynamic or ecological function that existed prior to mining. Specifically, hydrologist and soil engineer, Associate Professor Willem Vervoort noted that “Existing research on mine rehabilitation mostly suggests deficiencies in the nutrient and or soil quality of rehabilitated sites, even after application of remedial nutrients”.

This in turn significantly impacts the ability to restore biological diversity, particularly to a vegetation community that has been selected prior to any rehabilitation taking place as is proposed through this policy. Associate Professor Vervoort went on to comment “the few long term studies suggest that short term success actually might inhibit long term sustainability, as the initial rapid growth supported by fertilizer applications to manage erosion moves the ecology in a specific direction. The resulting ecological community is not necessarily the most stable community on the long term. This could lead to dramatic changes (vegetation dieback) at a later stage due to insect damage, age or lack nutrient. Given how new the science of mine rehabilitation is (about 20 years) there is also not much long term research available to develop a clear understanding of landscape development post mining. As a result it is not possible to verify if the proposed rehabilitation will actually succeed.”⁶

The *Environmental Protection Act 1994* (Qld) provides the rehabilitation and financial assurance framework in Queensland, including the process for claiming or realising of the assurance should it be required. Guidelines on rehabilitation requirements and the financial assurance framework have been established to assist implementation.⁷ However, the policies defined in the rehabilitation guidelines are often criticised for not providing sufficient certainty to operators, and the community, as to when rehabilitation will be considered to be completed and what standards are expected of rehabilitation.

In WA the use of bonds has been phased out and replaced by a Mining Rehabilitation Fund. Miners pay into the fund as land is disturbed, based on a common formula. This central fund is then available for rehabilitation works.

⁵ http://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1455/attachments/original/1400219519/140516_NSW_Biodiversity_Offsets_Policy_for_Major_projects_-_EDO_NSW_Submission.pdf?1400219519

⁶ Vervoort, W. (2013) Expert Report HEL v Minister for Planning and Ashton Coal. Land and Environment Court of NSW.

⁷ <https://www.ehp.qld.gov.au/assets/documents/regulation/rs-gl-rehabilitation-requirements-mining.pdf>;
<https://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-financial-assurance-ep-act.pdf>.

However companies operating under State Agreements are not required to pay into the Mining Rehabilitation Fund. Therefore there are many large mining projects in WA that not subject to either a bond or Mining Rehabilitation Fund payment.

Of concern in every state and territory is that mines can avoid or delay rehabilitation responsibilities by entering an indefinite, and often undefined, 'care and maintenance' mode. Responsibilities during 'care and maintenance' tend to relate to keeping a site safe and stable, and avoid any need to undertake progressive or meaningful rehabilitation. A decision to enter 'care and maintenance' can occur with no need for the proponent to provide certainty as to when they will recommence operations or close and rehabilitate the mine. In 2013 the Queensland Auditor-General concluded that:

There are a number of reasons why a mine might go into care and maintenance, such as changes in world commodity prices. It can also be used as a means of avoiding rehabilitation. There is no clear definition of care and maintenance sites and there are a lack of protocols between EHP and NRM about the management of these sites. This results in sites remaining in care and maintenance while the departments dispute over the administrative and regulatory responsibility for the site.⁸

The community should be afforded greater certainty on the responsibilities and timelines for rehabilitation at all times.

Progressive rehabilitation provides multiple benefits which help ensure higher quality rehabilitation is undertaken. Historically, consideration of mine closure and rehabilitation has been considered too late in the process, when funds from operation have already dried up. Progressive rehabilitation ensures that the mine operator has turned their attention to rehabilitation requirements throughout the mine life, leading to better understanding of the requirements and management of mine rehabilitation on the site; that funds are made available throughout the mine life for rehabilitation to be undertaken; and provides community confidence and understanding in the operator's commitment to rehabilitation.

However progressive rehabilitation conditions have proven very difficult to enforce due to the need to rely on the operator to determine when mining has finished in an area, and the high degree of flexibility in operational plans. For example, in Queensland many Environmental Authorities require that progressive rehabilitation commences when 'areas become available within the operational land'; a decision which is ultimately reliant on the proponent deciding what constitutes 'available'. When detailed rehabilitation plans are deferred to plans of management rather than conditions of consent, the high degree of flexibility offered for amending plans of management mean there is no certainty of outcomes or timing, further hindering enforceability.

⁸ Queensland Audit Office (2013) *Environmental regulation of the resources and waste industries* Report 15 : 2013–14

The adequacy of biodiversity related rehabilitation under the current legal regime is seriously questionable. This is largely due to an increasing focus for biodiversity rehabilitation on the use of offsets, particularly allowing future rehabilitation to be considered as an offset for habitat loss arising during the life of the mine.⁹ This approach creates clear risks of an extinction debt¹⁰ with the associated risk of failing to meet international obligations for species protection. We strongly oppose the generation of biodiversity offset credits on previously mined land.

Equally concerning is the long-term impact on water resources. Most jurisdictions provide for some type of water licencing for resource projects during the life of the operation but, as can be seen in numerous coal mine environmental assessments, there is usually an intention of operators to on-sell any water licences following operation of the mine. This is despite the fact that many mines will continue to 'take' water long after even rehabilitation is complete either through evaporation from final voids or leakage of groundwater from the disturbed aquifers.

These problems can be enhanced in situations where environmental issues related to closure fall under the responsibility of multiple government agencies under different legislation with different expectations of closure and tenure relinquishment. For example in WA the Department of Mines and Petroleum; Department of Environmental Regulation; Department of Water; and EPA all share responsibility for different aspects of mine closure. This can lead to a lack of consistency in mine closure and rehabilitation (particularly progressive rehabilitation) requirements, as well as a lack of co-ordination in terms of enforcement and review of mine closure plans.

⁹ This issue was discussed in detail in EDO NSW (2014) *Submission on the Draft NSW Biodiversity Offsets Policy for Major Projects* available at: http://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1455/attachments/original/1400219519/140516_NSW_Biodiversity_Offsets_Policy_for_Major_projects_-_EDO_NSW_Submission.pdf?1400219519

¹⁰ i.e. the future extinction of species due to decisions being made today as a result of factors such as destruction of habitat from which species can not recover.

C. The adequacy and transparency of financial mechanisms, including assurances, bonds and funds, to ensure that mining and resources projects are rehabilitated without placing a burden on public finances

It is well recognised around Australia that current mechanisms are failing to ensure that mining and resource projects are properly rehabilitated without risking the placement of the burden on public finances. The downturn in the mining sector makes this risk even greater.

A 2016 review by Lock the Gate¹¹ identified that:

...mining companies appear to consistently underestimate the cost of mine closure. Equally the whole issue of closure risk is not dealt with in any depth in any annual or sustainability reports.

The Queensland Audit Office report, 'Environmental regulation of the resources and waste industries', found that the financial assurance held by Queensland to remediate environmental impacts from abandoned mines has historically been, and remains, insufficient to cover the estimated rehabilitation costs.¹² A leaked report from the Queensland Department of Environment and Heritage Protection states the liability held by the state for rehabilitating existing abandoned mines sits at \$3.2 billion due to the failure of the current financial assurance system in not covering the true cost of mine rehabilitation. Equally concerning was the finding that only 22.5% of coal mine disturbance has been subject to some type of "preliminary" rehabilitation, which is a reduction on 28% in 2006.

The NSW Audit Office is expected to release a report in April 2017 examining the issue of whether security bonds are potentially too low to cover the true cost of rehabilitating the land, as well as any long-term post closure management requirements. The audit will also consider how conditions of consent are used by the Division of Resources and Energy (DRE) "to identify appropriate rehabilitation outcomes."¹³ It is likely that this audit arose from long standing community concerns about the adequacy of rehabilitation bonds.

Many approvals for resource projects in NSW require a rehabilitation bond in the form of a security deposit. This security deposit aims to cover the NSW Government's full cost of undertaking rehabilitation in the event of a default by the titleholder. To calculate this cost the titleholder is required to provide DRE with an estimate of rehabilitation costs which is considered by DRE when determining the amount of the security deposit. If the Minister has not used the security deposit to recover rehabilitation costs then the security deposit can be returned. This occurs either when the requirement under the conditions of

¹¹ Lock the Gate (2016) *Mine Rehabilitation and Closure Cost: A Hidden Business Risk*

¹² Queensland Audit Office, *Environmental regulation of the resources and waste industries*, Report 15: 2013-2014, 4, available at:

https://www.qao.qld.gov.au/sites/all/libraries/pdf.js/web/viewer.html?file=https%3A%2F%2Fwww.qao.qld.gov.au%2Fsites%2Fqao%2Ffiles%2Freports%2Ftrtp_environmental_regulation_of_the_resources_and_waste_industries.pdf

¹³ NSW Audit Office, Performance Audit Program 2016-17:

http://www.audit.nsw.gov.au/ArticleDocuments/298/Performance_Audit_Program_2016-17_to_2018-19.pdf.aspx?Embed=Y

approval to maintain the security deposit lapses, or when the Minister has determined that any obligations under the authorisation have been fulfilled to a satisfactory extent and in a satisfactory manner. However in our view the mechanism by which these deposits are derived significantly under values the true costs of rehabilitation as it focuses only include physical activities (such as re-creating a final landform) and short term actions (such as initial revegetation and maintenance), rather than the full cost of measures to ensure long term sustainability.

Similarly, in Queensland, a mining proponent must propose an amount to financially assure the potential cost of rehabilitation of the disturbed land. This amount must now be calculated using a specific calculator, whereas previously there was no standard calculation method required and the proponent's calculations were accepted. The Queensland Audit Report noted the lack of skills and confidence of some government staff, particularly in regional areas, in ensuring that financial assurance amounts were adequate, and the inadequacy and inconsistency in the calculator being used across regions of Queensland.¹⁴

One of the biggest impediments to ensuring adequate financial assurance is held by the government in Queensland has been the policy of providing a 30% discount on financial assurances required of well performing operators. This was reported by the Queensland Audit Office to be contributing to the gap in the amount of financial assurance held by the government compared to the estimated cost of rehabilitation.¹⁵

Another mechanism that may be used to ensure the public does not bear the burden of future liability is insurance. However, few states require companies to obtain insurance for the purpose of covering damages that arise from inadequate or insufficient rehabilitation, particularly in relation to surrounding communities.

There is an urgent need for a review of potential state and territory liabilities for operating mines, with a particular focus on any difference between current financial assurance or bond arrangements and the true long-term cost of comprehensive rehabilitation. Any such review should also consider the measures state and territory governments currently have in place to manage this risk, whether financial assurances are available to government or simply in the form of bank guarantees, and, where relevant, the use of discounting in setting financial assurance or bond arrangements. All existing and future financial assurances and bonds should be set through an independent, specialist assessment process.

¹⁴ Queensland Audit Office, *Environmental regulation of the resources and waste industries*, Report 15: 2013-2014, 44, https://www.qao.qld.gov.au/sites/all/libraries/pdf.js/web/viewer.html?file=https%3A%2F%2Fwww.qao.qld.gov.au%2Fsites%2Fqao%2Ffiles%2Freports%2Frtp_environmental_regulation_of_the_resources_and_waste_industries.pdf

¹⁵ *Ibid*, 45.

D. The effectiveness of current Australian rehabilitation practices in safeguarding human health and repairing and avoiding environmental damage

Lamb *et al* (2015)¹⁶ identify numerous examples of instances where abandoned mines have been responsible for significant downstream human health impacts and environmental damage:

Examples include Captains Flat in NSW where heavy metal leachates from the former mine were draining into Lake Burley Griffin in Canberra (Norris 1986); Rum Jungle in the Northern Territory where copper and uranium were polluting downstream waters (Mudd & Patterson 2010); Mt Lyell in Tasmania where untreated tailings were dumped into local rivers causing severe pollution and where aerial pollution from the smelter led to extensive vegetation loss in the surrounding mountains (Singh 1999); and, Mt Morgan in Queensland where acid mine drainage and water from the open-cut pit polluted 50 km of the Dee River (Edraki et al. 2005; Queensland Government 2015).

Given the long timeframes over which impacts can arise and given so few mines have been relinquished under modern planning systems, the effectiveness of current Australian rehabilitation practices in safeguarding human health and repairing and avoiding environmental damage remains unproven.

¹⁶ Lamb, D., Erskine, P. and Fletcher, A. (2015) *Widening gap between expectations and practice in Australian minesite rehabilitation* Ecological Management & Restoration 16:3

E. The effectiveness of existing abandoned mines programs, with regard to repairing environmental damage and safeguarding human health

Unger *et al* (2012)¹⁷ identified that with more than 50,000 abandoned mines across Australia, there is a strong need to systematically assess the environmental and human health risks from abandon mine and progressively develop mine rehabilitation programs that are leading practice. The University of Queensland 'Managing Mining Legacies' forum¹⁸ identified the steps required to implement the *Strategic Framework for Managing Abandoned Mines in the Minerals Industry*.¹⁹ This forum identified the importance of full liability accounting to understand the true costs of abandoned mine rehabilitation and recognised that regulation with strong performance standards was necessary to adequately address legacy issues. Progress in this regard remains slow.

In Queensland, the regulation of abandoned mines is solely focused on health and safety, there is no regulation of mitigation of environmental impacts which may occur from abandoned mine by either the state *Environmental Protection Act* (1994), nor the federal *Environmental Protection and Biodiversity Conservation Act* (1999). Although the Department of Environment and Heritage Protection provides environmental authority assessment and conditions, including determining the financial assurance amount, once the mine becomes abandoned it is under the responsibility of the Department of Natural Resources and Mines. The Queensland Audit Office report remarks on the disconnect in the management of mines between these two departments.

In NSW prior to 1974, mine rehabilitation was not addressed by mine operators or the NSW Government which means there are a large number of abandon or derelict mine sites across the State.²⁰ The NSW derelict mines program has been running since 1974 with the main purpose of supporting current landowners with derelict mines on their property to remediate the site. However in 2011 the NSW Auditor-General identified that NSW had over 500 derelict mines and:

The Derelict Mines Program has many thousands of hectares of degraded and contaminated lands where the mining companies abandoned a mine without cleaning up or stabilising the mine site. OEH advised that potential liabilities for cleanup under the Derelict Mines Program would be substantial and that the few million dollars allocated annually to this program are substantially inadequate. OEH advised that when the Office of Energy and Minerals ceases regulating the sites as mines, most of these sites will revert to Crown land. As such, the Derelict Mine Program

¹⁷ Unger, C., Lechner, A., Glenn, V., Edraki, M. and Mulligan, D. (2012) *Life-of-Mine Conference 2012: Mapping and Prioritising Rehabilitation of Abandoned Mines in Australia*

¹⁸ <https://www.cmlr.uq.edu.au/resource/cmlr-managing-mining-legacies>

¹⁹ <https://web.archive.org/web/20130515085338/http://www.ret.gov.au/resources/Documents/mcmpr/MCMPR%20Strategic%20Framework%20for%20Managing%20Abandoned%20Mines%20vWeb%20Jan25.pdf>

²⁰ NSW Department of Industry Factsheet: "Exploration and mining rehabilitation" March 2016, Available online: www.resourcesandenergy.nsw.gov.au

*may represent the largest category of contamination liability for the New South Wales Government.*²¹

A mechanism used by a number of states and territories to address abandoned mines is a mining rehabilitation fund whereby rehabilitation funds from mining companies are collected centrally and made available to assist in rehabilitation abandoned mines on an as needs basis. This mechanism does have the potential to support a more integrated approach to mine rehabilitation for both abandoned mines and currently operating mines. However, we note that any pooled fund model must ensure that adequate funds are required to be provided by proponents to meet the risk of rehabilitation requirements and environmental harm remediation early on in the funds development. Further, the pooled model must provide an incentive for operators to undertake progressive rehabilitation through requiring contributions that are sufficiently high for the company to have an incentive to want to reduce the amount, and that the contribution can be dropped as progressive rehabilitation is undertaken. Ideally any new fund could also be used to address rehabilitation of abandoned mines.

It is vital that a high regulatory and management standard is applied to abandoned mines and that a priority framework is established to address legacy issues. There needs to be clear government responsibility for leading action on this issue and a clear prioritisation framework that shares information management and operational models across jurisdictions. A useful model to progress this issue is the Canadian National Orphaned/Abandoned Mines Initiative²² which is based on the following guiding principles:

1. *The remediation of orphaned and abandoned mine sites must be based on concern for public health and safety, respect for ecological integrity, and sustainable development.*
2. *All work currently ongoing with respect to inventory building and remediation must continue to be based on sound science and good communication among all parties.*
3. *Work toward eliminating future abandonments must continue, including the tightening of regulatory approaches.*
4. *Implement the 'polluter pays' principle.*
5. *Targeted end-use and reclamation standards must be acceptable to local communities.*
6. *Although the objective must be comprehensive reclamation of all sites, the approach must be cost-effective and based on an acceptable method of prioritising sites.*
7. *Transparency and disclosure must be present in all decision making processes.*
8. *Encompass the notion of 'fairness' in all endeavours.*²³

²¹ Audit Office of NSW (2011) *New South Wales Auditor-General's Report: Financial Audit Volume Six 2011 Focusing on Environment, Water and Regional Infrastructure*

²² <http://www.abandoned-mines.org/en/>

²³ <https://www.ausimmbulletin.com/feature/national-orphanedabandoned-mines-initiative-in-canada/>

F. Whether any mining or resources companies have engaged in conduct designed to avoid fulfilling their rehabilitation obligations

There is significant community concern that larger mining and resource companies are selling mines, with their associated rehabilitation obligations, to smaller companies that may not have sufficient capital to fulfil rehabilitation obligations. This is a particular risk where the costs of rehabilitation have been significantly underestimated. In these instances, requirements that the new operator must have sufficient funds to meet any rehabilitation liabilities are meaningless.

One of the clearest recent examples of this type of transfer is the sale of the Blair Athol mine by Rio Tinto Coal Australia (**RTCA**) to unknown minor company Orion Mining Pty Limited, a wholly owned and operated subsidiary of TerraCom Limited, for \$1. RTCA had owned Blair Athol for almost 30 years. In August 2012 RTCA announced the closure of the mine on the grounds that it was no longer economic. At this time, RTCA did not have a fully developed mine closure plan for Blair Athol. Following the costing of the closure plan, RTCA decided not to pursue full closure and rehabilitation, and attempted to sell the site, with closure liabilities, to the now bankrupt Linc Energy for \$1. This transaction failed and RTCA remains the responsible Rio Tinto entity. Terracom, a minor operator in financial distress announced it had reached a heads of agreement with Rio Tinto to buy Blair Athol. Rio Tinto has underwritten the mine rehabilitation financial assurance to \$80m in cash, however there are serious concerns that this figure is insufficient to provide for the full rehabilitation of the site. Informed estimates are that the true cost of rehabilitation of the Blair Athol site is around \$150m-\$160m based on Rio Tinto's internal estimates.

The risks around transfers such as these are heightened by a lack of strong regulation and insufficient review of the viability of companies being granted mining leases. In Queensland, there is a requirement to consider whether the financial resources of a company are sufficient to comply with the mining lease conditions prior to the government approving the transfer of a mining lease to that company.²⁴ Frequently this review is questionable; apart from the example of above, a transfer of Baralaba North mining lease to Cockatoo Coal Limited was approved in Queensland in 2016, even though Cockatoo Coal was in administration. This weak regulation is not only putting these mines at greater risk of being abandoned, it is also undermining public confidence in the regulation of resource activities.

²⁴ *Mineral Resources Act 1989* (Qld), s318AAT(2)(b).

I. International examples of effective rehabilitation policy and practice

There are some useful lessons to be learned from international examples of rehabilitation policy and practice, although for most jurisdictions there remain concerns about whether regulatory frameworks are achieving best practice. These concerns would need to be addressed prior to introducing similar systems in Australia. In this submission we briefly note examples from the United States and Canada.

United States of America

Mine rehabilitation in the United States is regulated at the Federal level by the *Surface Mining Control and Reclamation Act (1977) US (SMCR Act)*. A key feature of this legislation is the requirement for mine operators to put land back in place after concluding the mining operations. Permit approvals require that the mine operator outline the reclamation plan with a detailed description of how the proposed post-mining land use is to be achieved.²⁵

Any mining permit issued requires that mine operators achieve certain environmental protection performance standards. The standards require that the mine operator restore the land effected to a condition capable of supporting the uses which it was capable of supporting prior to any mining, or higher or better.²⁶ There is a requirement to backfill to restore the approximate original contour of the land with all high walls, spoil piles, and depressions being eliminated.²⁷ However, there is an exception to this requirement where the void is very large, or the upper fraction of a hill is removed, and the overburden is not of sufficient volume to backfill.²⁸ The backfilling standards require that topsoil is removed in a separate layer and maintained to restore the land in reclamation.²⁹ The reclamation process should be done as contemporaneously as practicable with the surface coal mining operations.³⁰

The principal means of enforcing the reclamation plan and performance standards in the SMCR Act is through requiring the companies to secure performance bonds.³¹ The companies can get the bond back when they complete each phase of the reclamation process.³² The amount of the bond should be sufficient to cover the reclamation plan if the work had to be performed by the government regulatory authority.³³ Due to the importance of the bond it is essential the bond is calculated correctly. There is data to indicate that this system has had limited success because of the lower than expected number of mining operations released from bonds which indicates the reclamation work has

²⁵ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1265. Environmental protection performance standards

²⁶ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1265(b)(2)

²⁷ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1265(b)(3)

²⁸ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1265(b)(3) and (c).

²⁹ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1265(b)(5)

³⁰ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1265(b)(16)

³¹ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1259. Performance bonds

³² *Surface Mining Control and Reclamation Act (1977) US*, sec. 1269 (c).

³³ *Surface Mining Control and Reclamation Act (1977) US*, sec. 1259 (a).

not been done.³⁴ Also, a high level of return of the bonds during the initial stages of rehabilitation has led to a reduction in the incentive to continue with rehabilitation throughout the mine life. We understand that generally miners can get 60% of their bond back for undertaking the first phase of their rehabilitation, being backfilling and grading the area. Furthermore, the bankruptcy of Peabody Energy Corp has ignited concern in the U.S. that bankrupt coal companies will be able to shift their liabilities for reclamation to the State.³⁵ This is because many of the bonds are less than the full cost needed to complete reclamation due to a state level alternate to a bonding system which allows for a self-bond without secure surety if the operator can prove a history of solvency.³⁶ This alternative system often does not require site-specific calculations of what reclamation would actually cost which further provides risk for the regular in ensuring mine reclamation.³⁷

British Columbia

The Ministry of Energy and Mines regulates the approval, development and reclamation of all mines in British Columbia under the authority of the *Mines Act* and its associated regulations, and all other applicable Federal and Provincial laws. Similar to the U.S. legislation, as a condition of the permit under the *Mines Act* in British Columbia the mine operator must pay security to a mine reclamation fund.³⁸ This security policy is to ensure the government will not have to contribute for the cost of reclamation if the mining company does not fulfil its obligations.

A recent report by the Auditor General into British Columbia's government compliance and enforcement activities of the mining sector found several shortfalls.³⁹ The regulatory oversight of the sector by the Ministry of Energy and Mines was found to be inadequate.⁴⁰ The compliance and enforcement framework adopted by the Ministry of the Environment was found to have significant gaps.⁴¹ Both ministries lacked sufficient resources and tools to manage environmental risks from mining activities.⁴²

The Auditor General found the bonds taken by the Ministry of Energy and Mines for the approval of the mines are not adequate to cover the estimated

³⁴ Epstein, H, Wald, J. Smillie J. 'Undermined Promise. Reclamation and Enforcement of the Surface Mining Control and Reclamation Act 1977-2007'. Natural Resources Defense Council and Western Organization of Resource Councils. 2007. P15-17 <http://www.worc.org/media/SMCRA-Report1.pdf> Accessed 24/08/2016.

³⁵ Tong, S. 'Bankrupt coal companies get break on clean-up costs' Marketplace. August 18, 2016. <http://www.marketplace.org/2016/08/18/sustainability/coal-bankruptcy> Accessed 29/08/2016.

³⁶ Surface Mining Control and Reclamation Act (1977) US, sec. 1259 (c);

³⁷ McGinley, P. 'Will taxpayers foot the cleanup bill for bankrupt coal companies?' *The Conversation*. May 10, 2016. <http://theconversation.com/will-taxpayers-foot-the-cleanup-bill-for-bankrupt-coal-companies-56415> Accessed 29/08/2016.

³⁸ *Mines Act* [RSBC 1996] CHAPTER 293, Section 10.4 and 10.5

³⁹ British Columbia Auditor General. An audit of compliance and enforcement of the mining sector. May 2016. <https://www.bcauditor.com/sites/default/files/publications/reports/OAGBC%20Mining%20Report%20FINAL.pdf> Accessed 20/09/2016

⁴⁰ British Columbia Auditor General. An audit of compliance and enforcement of the mining sector. May 2016. p 6 <https://www.bcauditor.com/sites/default/files/publications/reports/OAGBC%20Mining%20Report%20FINAL.pdf> Accessed 20/09/2016

⁴¹ *Ibid.* p 6.

⁴² *Ibid.* p 6.

environmental liabilities. The ministry has estimated the total liability for all mines at more than CAD\$2.1 billion, yet has obtained financial securities for less than half that amount (CAD\$0.9 billion).⁴³

⁴³ British Columbia Auditor General. An audit of compliance and enforcement of the mining sector. May 2016. p 6.

J. Proposals for reform of rehabilitation of mining and resources projects

Effectively addressing the impacts that may arise from inadequate or inappropriate rehabilitation of mining and resources projects requires reform from the initial assessment process through to the final acceptance of completion. While much of the responsibility for this is within state and territory government control, there remains an important role for the Commonwealth in ensuring adequate standards of rehabilitation are enforced to protect matters of national environmental significance (**MNES**). We provide a number of recommendations on how the Commonwealth can play a more meaningful role in ensuring appropriate rehabilitation is undertaken across Australia.

Assessment Process

A key consideration in the assessment process should be what the final rehabilitation outcome for a project will be and how that will be achieved. This should include:

- development of a mine closure plan prior to approval, based on the ability of the site to meet minimum standards of rehabilitation and closure, including no final void;
- an independent scientific assessment of the likelihood of the stated outcomes being achieved and their acceptability under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwth) (**EPBC Act**);
- an independent economic assessment of the cost of the project that includes the cost of meeting the closure outcomes; and
- a financial mechanism by which the Commonwealth can be certain that the proponent will bear the cost of the necessary rehabilitation.

Environmental assessments must recognise that mine operations should be designed around the ability and cost of meeting rehabilitation and closure objectives. Only by having a detailed mine closure plan at the time of assessment, can rehabilitation costs be fully integrated into mine management and the community and decision makers be confident that the true cost of mining is adequately accounted for in the assessment process. We note that in WA closure requirements are contained in mine closure plans which are developed either under an environmental approval or through the mining proposal approved by the Department of Mines and Petroleum. While this approach means closure is considered at the assessment phase, in practice the closure plans are often very flexible, don't include a requirement for progressive rehabilitation, and are subject to review every five years making them difficult to legal enforce. Mine closure plans should be guided by minimum environmental standards required to protect MNES post mine closure. These standards must also be reflected under state and territory legislation.

To ensure the burden of future rehabilitation costs do not fall to the public, upfront assessment of a mine closure plan and associated rehabilitation requirements, should be focused on the real timeframes involved in rehabilitation and assess the scientific certainty involved in achieving rehabilitation outcomes. For groundwater, the timeframe could be hundreds, if not thousands, of years. This

would require a realistic assessment of the accuracy of modeling over the long term and the ability to adequately restore environmental ecosystems. Scientific uncertainty, and the associated research and monitoring that this requires, must inform the ongoing management activities that will ensure rehabilitation activities achieve the stated outcomes.

Approval Process

Given project approvals are linked to specific sites and not individual operators (which are often sold at the end of a mining or resource project), and that relinquishment of mining titles happens at the state or territory level, there is an ongoing risk that operators who obtain approvals may sell the project when mining and resource operations are finished, thus leaving rehabilitation and closure to future landholders and/or the public. Addressing this risk requires the Commonwealth to impose appropriate rehabilitation conditions at the time of approval.

Commonwealth approvals already apply conditions in relation to threatened species and ecological communities, most often in form of management plans. While there has been some use of the threatened species and communities and water triggers to improve Commonwealth oversight of rehabilitation, the approach remains ad hoc and the power to impose conditions in this regard is used inconsistently. In our view there is a need for a significantly expanded role for the use of the water trigger in ensuring adequate environmental outcomes. Under the water trigger, the Minister must 'take into account' advice from the Independent Expert Scientific Committee (**IESC**) about the impacts of the development on water resources. The IESC has identified concerns in relation to final voids. As noted in our response to ToR I, backfilling of voids is increasingly seen as best practice and has been a legal requirement in the USA under the *Surface Mining Control and Reclamation Act* (1977) (US) since the 1970s.

EDO's submission to the 2016 *Independent review of the 'water trigger' legislation - Issues paper* noted that:

*The 'water trigger' was introduced in response to widespread and ongoing community concern regarding the impacts of coal seam gas (CSG) and mining development on water resources...
However, it was and still is considered a relatively modest intervention.*

In that submission, we recommended that the EPBC Act be amended so that:

- the 'water trigger' applies to all large mines that excavate beneath the water table and to large unconventional gas projects;
- the Minister 'must not act inconsistently' with the IESC's advice when determining the project;
- conditions of consent are required to reflect the IESC's advice;
- the Minister must not approve a project until the proponent has adequately addressed any concerns raised by the IESC in their report.

Relevant mine rehabilitation conditions under the water trigger could appropriately include, amongst others:

- a requirement to avoid final voids as per IESC recommendations;
- requirements for groundwater monitoring plans to identify a future steady state equilibrium and an adaptive management plan for the rehabilitation phase to achieve this outcome; and
- an upfront bond for groundwater management and recovery that will be held by the Commonwealth Department of Environment until groundwater has reached the approved steady state equilibrium. Clear regulations and guidelines which provide for the calculation method for the bonds and when this bond can be 'called in' will be required.

Applying Rehabilitation Requirements through Outcomes Conditions

The Commonwealth has recently indicated a desire to increase the use of outcome based conditions. EDOA has previously expressed concern with the application of this policy,⁴⁴ most relevantly noting:

The Department should consider and clarify how to ensure proponents are responsible for the entire lifecycle of their project, including decommissioning, rehabilitation and legacy issues. The Productivity Commission has urged governments to guard against the risk of mining companies defaulting on rehabilitation, and leaving governments and the public to bear the costs.

While issues of mine rehabilitation do not fit within the framework for outcome based conditions,⁴⁵ appropriate adaptation of the key elements of outcome based conditions could support a stronger Commonwealth role for ensuring adequate mine rehabilitation. Specifically proponents could develop a statement of outcomes for rehabilitation of MNES with a series of measurable milestones that would ensure that proponents understand their ultimate rehabilitation requirements before commencing work on a project. This would then allow the appropriate financial assurances to ensure these outcomes are achieved.

⁴⁴ https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/2315/attachments/original/1444367773/151009_Draft_Outcomes-based_Conditions_Policy_and_Guidance_-_EDOA_Submission_-_FINAL.pdf?1444367773

⁴⁵ The Outcomes Conditions Policy states that Outcomes Conditions should only be used when: Environmental risks are well understood and can be adequately managed.

- High quality baseline data about the protected matter or something that directly supports the protected matter (e.g. habitat) is available or could be obtained.
 - There is a good understanding of and consensus about the likely impacts of an action on the protected matter.
 - The approval holder has demonstrated capability and willingness to achieve the outcome.
 - A sufficient level of knowledge and information on the protected matter is available to define an outcome.
 - There are reliable methods available to achieve the outcome in the desired timeframe and there is reasonable confidence that the outcome is achievable.
 - The outcome for the protected matter or something that directly supports the protected matter is measurable, able to be enforced and appropriately monitored.
 - The performance towards achievement of the outcome is capable of independent and periodic audit.
- EDOA supports the use of these parameters in the use of outcomes conditions.

Any such adaptation of outcomes conditions would need to be based on the best available scientific advice, including that provided by the IESC, and recognise the inherent uncertainty in predicting groundwater and biodiversity recovery over time. An appropriate use of the outcomes based conditioning process⁴⁶ for rehabilitation of biodiversity and groundwater, could include adaptation of the six key elements of outcomes based conditions as follows:

1. Outcomes – what is the final landform and land use going to be and what new groundwater or biodiversity steady state is required to support this?
2. Milestones – what are key phases of rehabilitation works and when are key on-ground changes likely to be seen?
3. Performance indicators - what is the rate of recovery predicted and is the environment responding as expected?
4. Monitoring requirements – what intervals of monitoring are required to ensure the predicted recovery trajectory is being met?
5. Adaptive management and continual improvement – how will deviations from the projected recovery be addressed and how will long term responsibility for recovery of the site, including the associated costs, be maintained?
6. Record keeping, publication and reporting – what will the proponent do to ensure that any future landowners and the public are kept informed of the rehabilitation process?

Each stage of the outcomes condition process must be supported by strong enforcement with appropriate penalties for non-compliance.

Ensuring financial responsibility remains with the operator

Conditions requiring ongoing reporting on the status of mine rehabilitation and closure should be supported by specifying the need for reporting in all financial statements and obligations, not just those under conditions of approval. The Australian Securities & Investment Commission (**ASIC**) currently provides guidance on how to appropriately report on forward looking statements for mining and resources.⁴⁷ The guidance states:

Under sections 670A(2), 728(2) and 769C of the Corporations Act and section 12BB(1) of the ASIC Act (together the 'legal requirements'), a statement about future matters must be based on reasonable grounds at the date the statement is made or it will be misleading.

The guidance goes on to specify the various industry codes, Australian Stock Exchange (**ASX**) Listing Rules and ASIC guidance notes that should be applied in providing forward looking statements. Mine rehabilitation and closure costs are reasonable expenses that should be considered at the time of project planning and all stages of implementation. Such consideration through the Corporations Act is necessary to ensure the objects of the EPBC Act and the principles of

⁴⁶ As described in the Outcomes-based conditions guidance, available at: <http://www.environment.gov.au/system/files/resources/4519549d-7496-4146-8dd4-58d55a7457cb/files/outcomes-based-conditions-guidance.pdf>

⁴⁷ <http://asic.gov.au/regulatory-resources/takeovers/forward-looking-statements/mining-and-resources-forward-looking-statements/>

ecologically sustainable development are met. The relevant industry codes, ASX Listing Rules and ASIC guidance should be updated to reflect these requirements.

Given the long timeframes involved in achieving full rehabilitation, an important consideration is how responsibility will be maintained if the operators themselves cease to exist. In Queensland, the recently passed *Environmental Protection (Chain of Responsibility) Amendment Act 2016 (Qld)* provides the Queensland Government with more powers to make orders forcing clean-up against persons related to companies. The Act allows the piercing of the corporate veil to make individuals responsible for decisions or actions which led to environmental harm or breach of conditions where the company is unable to provide for the remediation of the harm or potential harm. Under this Act, an individual can be made liable for activities or omissions of a company even after the individual has left the company. The individual may also have only profited from the decision or action to be held liable. This has reduced the risk of the Queensland Government being left with the liability of funding the often significant clean-up costs if companies go into administration.

A similar power could be introduced at a federal level, whereby the Federal Government has the ability to penalise, or seek action or payment, from an individual where that individual has led to potential or actual environmental harm or breach of conditions through their actions, decision, or where the individual has profited from such a decision or action. This provides an increased incentive for operators to abide by environmental regulations.

Conclusion

Key reforms are needed to ensure that the Commonwealth more effectively meets its responsibilities regarding the rehabilitation of mining and resource projects. These are noted throughout this submission and summarised below. We submit that the regulatory and policy framework must:

1. Set strict, enforceable federal standards for progressive rehabilitation and best practice mine closure planning which must be implemented at a state level.
2. Require fully developed and costed mine closure plans as part of the initial environmental assessment and consider these plans as part of the considerations of acceptability of impact on MNES and ensure that are reflected in any conditions of approval.
3. Make mining companies pay upfront for independently assessed financial assurances to fully cover rehabilitation costs and ensure that these expenses are appropriately and publicly reported as financial liabilities.
4. Close loopholes that allow indefinite 'care and maintenance' status for mines, and the sale of mines and resource projects to small companies ill-equipped to undertake rehabilitation.
5. Implement a rigorous monitoring and enforcement program with results to be made publicly available and with penalties for non-compliance.
6. Provide for federal powers to penalise, or seek action or payment, from individuals who have profited from or whose actions have led to potential or actual environmental harm or breach of conditions through their actions, decision, or where the individual has profited from such a decision or action.
7. Develop an integrated and comprehensive program of rehabilitation for abandoned mines.