Dealing with mining legacies: from bonds to a central mining rehabilitation fund in Western Australia

P. Gorey  Department of Mines and Petroleum, Western Australia

A. Morrison-Saunders  Environmental and Conservation Science, Murdoch University, Australia; School of Geo and Spatial Sciences, North West University, South Africa

D. Doepel  Africa Research Group, Murdoch University, Australia

H. Mtegha  School of Mining Engineering, University of Witwatersrand, South Africa

M.P. McHenry  School of Engineering and Information Technology, Murdoch University, Australia

Abstract

The responsible management of the rehabilitation and decommissioning of mine sites and the affected environs requires an effective regulatory, policy, and financial securities framework in place. While mining jurisdictions may have confidence in the adequacy of their policy and regulatory systems, financial security mechanisms (posted by mining companies in the form of unconditional performance bonds) are often also used to minimise negative mining-related outcomes. In theory, such mining securities ensure sufficient funds are available to a government to rehabilitate mine sites in the event operators fail to meet their mine rehabilitation and closure obligations. However, four major challenges are often encountered with these mechanisms: 1) They are commonly insufficient to cover appropriate mine closure activities and environmental remediation in the case of a default; 2) Bonds are tied to individual tenements and not damages outside of the designated zone; 3) Mining companies bear significant administrative costs associated with the creation and posting of bonds, and; 4) They do not solve the problem of historical abandoned mine sites. Conventional environmental bond mechanisms also create disincentives to mining company investment (particularly small companies) and little financial benefit for governments (benefits are largely captured by the banking sector). While Western Australia has long been considered as a sophisticated and advanced mining intensive jurisdiction, as of 2011 the state environmental bond system was estimated to cover less than 25% of the total obligation of mine site rehabilitation costs that may be required. These concerns led to the creation of an innovative policy approach: the Mining Rehabilitation Fund Act 2012. This paper discusses the background to the significant inefficiencies in the previous arrangements (which remain typical across the developed world), how they expose governments and mining companies to significant environmental obligations and financial challenges, and how they disincentivise mining activity. The paper also summarises how the Mining Rehabilitation Fund (MRF) anticipates and underwrites the full closure costs for mine rehabilitation, how it is a cost-neutral source of funds for governments to remediate existing abandoned mines, and how it ‘frees up’ mining company capital. It is estimated that after only ten years the MRF will cover the full clean-up cost of even the largest mine in Western Australia should any complete default occur as a worst case scenario. The interest earned by the government on the principal MRF funds will also be available for rehabilitation and remediation of previously abandoned mines, additional environmental monitoring, and impact assessment and remediation research and development. The paper concludes with how such a system may be adaptable to the African context.

Résumé

La gestion responsable de la remise en état et de la désaffectation de sites miniers et des environs affectés nécessitent une réglementation effective, une politique et un cadre de garanties financières en place. Alors que les juridictions minières peuvent avoir confiance dans l’adéquation de leurs politiques et systèmes de
réglementation, les mécanismes de sécurité financière (annoncés par les sociétés minières sous forme de garanties de bonne exécution inconditionnelle) servent souvent aussi à minimiser les effets négatifs qui y sont liés. En théorie, ces titres miniers s’assurent que des fonds suffisants sont disponibles pour qu’un gouvernement remette en état des sites miniers, dans le cas où les opérateurs ne respectent pas leurs obligations de réhabilitation et de fermeture. Toutefois, ces mécanismes font souvent face à les quatre défis majeurs : 1) ils sont souvent insuffisants pour couvrir les activités appropriées de fermeture et d’assainissement de l’environnement en cas de défaillance ; 2) les obligations sont liées à des logements individuels et il n’y a pas de dommages-intérets à l’extérieur de la zone désignée ; 3) les sociétés minières supporteront des frais administratifs importants liés à la création et au dépôt des cautionnements, et ; 4) ils ne résolvent pas le problème des sites miniers historiques abandonnés. Les mécanismes de cautionnement environnemental traditionnel dissuadent la société minière de s’investir (notamment les petites entreprises) et créent peu d’avantages financiers pour les gouvernements (les profits sont en grande partie captés par le secteur bancaire). Alors que l’Australie de l’ouest a longtemps été considérée comme une juridiction intensive de mines sophistiquées et de pointe, à partir de 2011 on a estimé que le système de cautionnement environnemental d’État couvraient moins de 25% de l’obligation totale des coûts de réhabilitation de site minier qui pourraient être nécessaires. Ces préoccupations ont conduit à la création d’une approche innovante : le « Mining Funds Rehabilitation Act 2012 » (Acte du Fonds de la réhabilitation minière). Cet article présente le contexte des inefficacités significatives des ententes précédentes (qui restent typiques des pays développés), elles exposent les gouvernements et les sociétés minières à des obligations environnementales importantes et à des défis financiers et découragent l’activité minière. L’article résume aussi comment le Fonds de la réhabilitation minière (MRF, « Mining Funds Rehabilitation ») anticipe et souscrit les coûts de fermeture complets pour la réhabilitation de la mine, comment c’est une source neutre de fonds pour que les gouvernements assainissent les mines abandonnées existantes et comment il « libère » le capital de la société minière. On estime qu’il ne faudra que dix ans pour que le MRF couvre le coût entier du déblayage, y compris celui de la plus grande mine d’Australie de l’ouest, si une défaillance devait se passer dans le pire des scénarios. Les intérêts perçus par le gouvernement sur les principaux fonds MRF seront également disponibles pour la réhabilitation et l’assainissement des mines abandonnées précédemment, la surveillance supplémentaire de l’environnement, l’évaluation de l’impact et des recherches sur l’assainissement et le développement. Le document se termine en expliquant qu’un tel système peut s’adapter au contexte africain.

1 Introduction

Western Australia has a significant mineral resources industry that contributes substantially to the global markets of bulk commodities, precious and base metals, and energy resources (McKay et al. 2013). The State, with total land mass of 2,529,875 km², has more than 1,000 operating mine sites which employ around 100,000 workers, and generates approximately A$ 93 billion a year in export value (DMP 2013). There are more than 50 different mineral commodities mined in Western Australia, including iron ore, alumina, copper, nickel, gold, and mineral sands. Much focus has been given in Australia to the establishment of environmental regulatory processes to ensure that significant mining proposals are undertaken in a way that limits adverse environmental impacts, and enables adequate mine site rehabilitation. Predictable and transparent granting of land access, assessment of potential environmental impacts, mine closure planning, and regulatory monitoring and reporting are all components of the overall regulatory system. However, mineral extraction shares commonality with some other forms of developments where the overall value of the land depreciates over time (as the ore is extracted). Therefore, unlike many other forms of development, the community cannot rely on the asset value of the property to generate the necessary funds to undertake rehabilitation and restoration if the miner fails to do so. It is for this reason that mining securities are used in many countries.

While mining has been undertaken in Western Australia since the 1880s, the consistent application of mining securities in Western Australia did not commence until the late 1980s. The principle aim of mining securities is to ensure that sufficient funds are available to government to rehabilitate mine sites in the event of operators not fulfilling their mine rehabilitation and closure obligations (Mackenzie et al. 2007;
DMP 2010). These mining securities were in the form of bank guaranteed unconditional performance bonds. This type of bond is a contract between an acceptable bank and the Minister for Mines, which provides for the bank to unconditionally pay the agreed sum to the Minister on his request. It is the responsibility of the mining operator to enter a commercial arrangement with the bank to service the unconditional performance bond (including providing annual service fees and equity security as required). Unconditional performance bonds relate to a specific site (geographic area), and can only be used by the Minister for rehabilitation on the site to which the unconditional performance bond was required. Therefore, the value of the unconditional performance bond needs to cover the expected costs of rehabilitation of the site. The value of the unconditional performance bond required to be provided by the operator in Western Australia, as is usually the case in other jurisdictions, is determined by the regulator.

The key problem faced by the State of Western Australia was that by 2005, it was estimated that the minimum bond rates represented, on average, only about 25% of the total cost (DMP 2010). Furthermore there was, and is, a legacy of more than 17,000 abandoned mine sites (Government of Western Australia 2014), as a result of more than a century of mining prior to the introduction of appropriate legislation and regulation. This meant that in the majority of cases, the unconditional performance bond was significantly less than contingent liability. The Government of Western Australia recognised that this situation was unsustainable and commenced a review to investigate the available solutions (DMP 2010). While the option was available to the Government of Western Australia to simply increase the unconditional performance bond obligations to at least 100 percent, it was decided to instead undertake an appraisal of the effectiveness of the current mining securities system, and consider any other alternatives.

2 The problems encountered with unconditional performance bonds

Unconditional performance bonds (UPBs) are a popular form of mining security, and have a number of benefits for industry, Government, and the community. These include:

- They offer a continuing, unconditional liability on the part of the mining operator. Their form means that there is essentially no requirement for the regulator to demonstrate specific performance failures prior to exercising the UPB (e.g. demanding that the financial institution pay the sum of the UPB). This means that immediate rehabilitation activity which the regulator has deemed as needed, can proceed without delay or dispute.

- They are enforceable until the bonds are formally retired by the regulator. UPBs have no time limit, and continue to exist in law until the regulator deems that the UPB is no longer required. This means that there is assurance that once in place, a UPB cannot lapse without the express decision of the regulator.

- UPBs are not subject to claims by creditors if the tenement holder becomes bankrupt or enters liquidation. Operators of mine sites are usually subject to financial exposures (e.g. commodity price fluctuations, currency exchange rates), and there is occasion where operations cease due to financial failure of the operating company. The advantage of the UPB is that it is an agreement between the financial institution and the regulator – and will continue to exist and be able to be exercised by the regulator.

- They are well understood by industry and regulators. UPBs are commonly used in Australia (and overseas), and there is considerable experience in their administration within regulators and the industry (DMP 2014).

In practice however, there are considerable challenges posed with the use of UPBs in the Western Australian setting; and it is suggested that some of these same challenges will exist elsewhere, including African nations. While there have been various studies undertaken which provide comparisons of mining securities applied in different jurisdictions and the various risks and benefits (e.g. Miller 2005; Sassoon 2009), it is appropriate to note the challenges specifically identified in the Western Australian scenario. One of the principle concerns for UPBs in Western Australia was that their value was insufficient to cover
appropriate mine closure activities and environmental remediation in the case of a default – and there was a significant problem for any regulator who underestimated a bond. The inadequate value for UPBs in Western Australia was apparent as a result of the adopted methodology for calculating UPBs, however, this issue remains a significant risk even if the principle of full-cost bonding is adopted. In practice, calculating full costs for the regulator to undertake rehabilitation government must consider costs beyond the actual rehabilitation costs which have a high degree of variability and/or uncertainty, including costs associated with: acquiring and mobilising rehabilitation equipment (and people) to the site; project managing, tendering and administration of the rehabilitation activities; addressing any unknown soil or water contamination, and; any ongoing monitoring or site management.

As the UPBs only relate to assurance for each specific site, any underestimate of the total rehabilitation cost will mean that the rehabilitation will not be able to be completed to the full extent, or funding will have to be provided from another public source. A separate limitation to UPBs is that (in the Western Australian setting), it is only able to be used by the regulator to undertake rehabilitation related to the relevant tenements. If rehabilitation activities are required off site, then this must be funded separately by the Government. While each case is specific, off-site contamination impacts (including unauthorised activities by the operator) are unlikely to be able to be addressed through UPBs for the site. Unconditional performance bonds are also not generally applied to all operations (notably small scale mining and exploration are not bonded). This is usually the case because of matters of practicality, where the administration of UPBs becomes proportionally more expensive for small operations. The fourth key issue with UPBs identified by DMP in its review was that there can be significant direct and indirect costs for miners to maintain UPBs. Analysis undertaken by DMP identified that when the costs of equity, administration and lost-opportunity costs were included; the annual cost to an operator for maintaining a UPB was likely to be between 6 and 10 percent of the face value of the UPB each year. At its peak in 2013, the total value of UPBs held by DMP was A$1,200 million. Therefore, it is relevant that implementing a conservative approach to the estimation of full cost UPBs (addressing the first three matters) was likely to result in significant direct and indirect costs to industry. While it is not necessarily a deficiency, the nature of UPBs mean that they only relate to current or future mining activities, and do not provide any funding for addressing existing abandoned mines sites.

3 Stakeholder collaboration and alternative solutions

In 2010 the Western Australian Government set out to investigate what options were available to reform the state’s mining securities. The approach taken by DMP was to establish a specific Mining Securities Industry Liaison Committee to provide contributions to the review, as well as utilise other formal and informal stakeholder consultation processes. The Mining Securities Industry Liaison Committee convened on 16 occasions over an 18-month period, and formal public consultation occurred through a Preliminary Discussion Paper (DMP 2010), and a Preferred Option Paper (DMP 2011). Further consultation was undertaken with financial institutions, other jurisdictions, legal advisors, non-government organisations, and other state and federal regulators and agencies. Investigation of various options identified that in practice there were only three potential options:

1. Retain the use of UPBs (and increase to at least 100% of rehabilitation cost);
2. Abandon UPBs and establish a new centralised fund which received compulsory, non-refundable contributions from operating mines, or;
3. Utilise insurance policies rather than UPBs or a centralised fund.

In order to provide a comparative assessment, each of the three possible options was assessed against the following performance principles which were adopted through the stakeholder consultation process (DMP 2011):
4. The quantum of mining securities does not unnecessarily deter investment in the State’s mining sector, ensuring Western Australia remains competitive in attracting investment to the resources exploration and development sector.

5. Mining securities continue to encourage operators to apply good environmental practice, including progressive rehabilitation and reporting, and to comply with all legal obligations under the Mining Act 1978 for exploration, mining and mine closure.

6. The mining security is secure and immediately accessible by the government, and its administration is cost effective.

7. The mining securities framework is clear and workable, and is supported by a robust compliance system to ensure operators do not avoid their mine closure obligations.

8. The calculation of a mining security is flexible, being commensurate with environmental risk.

9. The application and relinquishment processes for mining securities are transparent, predictable and applied equitably.

It was apparent that UPBs and the centralised fund option could both be formulated to meet the performance principles and the overall objective of mining securities in Western Australia. It was also identified that insurance policies were not a practical option, primarily because insurance policies are neither perpetual nor unconditional. However, the key difference between the UPB and the centralised fund was the cost impact upon the industry sector. The process of comparison between these two options identified that there is an unavoidable tension between minimising government’s financial risk and applying a financial impost on mining companies that did not distinguish between those whose track record was “good or bad” and that would create a significant disincentive to mine. It is observed that both options present a degree of financial risk to the government both directly and indirectly. The magnitude of the cost differential is significant; with total estimated costs associated with the centralised fund being approximately A$ 30-40 million per year, and the associated full cost of UPBs being an order of magnitude higher. Therefore, the centralised fund eventually became known as the Mining Rehabilitation Fund. A principle issue that was subsequently identified by the DMP was that stakeholders had different perspectives of the purpose of UPBs. An observation by the lead author through the review was that the policy intent of mining securities was not clearly understood by stakeholders, leading to them have different views of their effectiveness. This issue was independent of the form of mining security, but is a lesson for others.

4 Key components of the Mining Rehabilitation Fund in Western Australia

Following the research and investigation of options, the Western Australian Parliament passed the Mining Rehabilitation Fund Act 2012 to establish the Mining Rehabilitation Fund (MRF). The MRF is unique in Australia, and possibly the world for this type application to the mining sector. It is therefore appropriate to describe the key components of the MRF.

4.1 Conceptual

The MRF operates through each mine site operator being required, by law, to make an annual, non-refundable payment into a dedicated fund which is held by the Western Australian Government and administered by DMP. Mine site operators remain responsible for ensuring that they maintain separate finance provisioning to fund their rehabilitation and closure works in accordance with their mine closure plans. The existence of the MRF does not alter the legal obligations on land holders for the management of abandoned mine sites, nor does it demand that all abandoned sites will be rehabilitated with funds from the MRF. The MRF will only finance rehabilitation on those abandoned mine sites where reasonable compliance options have been explored and another operator cannot be found to take over the liability.
4.2 Purpose of the Fund and Fund Balance

The purpose of the MRF is to secure long-term funding for the Western Australian Government to rehabilitate abandoned mine sites within the State (Parliament of Western Australia 2012). There is no definitive ‘minimum fund balance’. As the Government is the manager of the fund, and any expenditure from the MRF is at the discretion of the Government, the expenditure from the fund can be scheduled to ensure that there is sufficient money available to government to manage the reasonably foreseeable financial liability arising from mining projects. It was anticipated through the development of the MRF, that a target fund balance of approximately A$ 500 million could be achieved within five to seven years following commencement of the MRF. The revenue, expenditure, capital, and potential liabilities for the MRF is reviewed annually. Since the compulsory commencement of the obligations to submit rehabilitation data to the DMP was 2013, this allows increased quantitative assessment of contribution rates to ensure sustainability of the fund. The fund’s income will comprise of annual payments from operators, and interest that is generated from investment of fund moneys will be returned to the fund.

4.3 Contributions to the MRF

All tenement holders under the Mining Act 1978 who have an estimated rehabilitation cost for the tenement more than A$ 50,000 are required to make a non-refundable payment into the MRF each year, with the payment equivalent to 1% of the estimated rehabilitation costs. All tenement holders under the Mining Act 1978 must, before 1 July each year, provide to the DMP accurate data on the extent of unrehabilitated land for each tenement. The Mining Rehabilitation Fund Regulations 2013 requires tenement holders to provide this area of unrehabilitated land differentiated into 31 different types of mining land uses (e.g. heap or vat leach facility, pit voids, fuel storage facility, etc.) for each tenement. By tying the payment to the unrehabilitated land the MRF also creates a financial incentive for companies, where possible, to rehabilitate land as they go and to minimise the amount of disturbance. While this is an anticipated outcome it will need to be established through on-going monitoring and research to see if in fact this is occurring. The Mining Rehabilitation Fund Regulations 2013 set for each of the 31 different types of land use a nominal cost of rehabilitation per hectare (e.g. fuel storage facility is nominally listed as A$ 30,000 per hectare to rehabilitate the land). If the aggregate nominal rehabilitation estimate for a tenement is more than A$ 50,000 once all land categories are combined, then the tenement holder is required to contribute 1% of that estimate to the MRF. Each tenement holder is required to enter their data on operational (unrehabilitated) areas at any time in the 12 months prior to 1 July of each year. Payments into the MRF are therefore in arrears. The tenement holder at 1 July each year is the person required to submit the data and obligated to make the payment to the fund. This is regardless of ownership changes throughout the previous year.

4.4 Expenditure and Review of the Fund

The Director General of DMP is the only person authorised to spend money from the MRF, and the money within the MRF can be spent on mine sites abandoned after 2014. Any money arising from interest generated from the MRF can be spent on administration of the MRF or on rehabilitation of any abandoned mine site (e.g. historically abandoned mine site). It is intended that the adequacy of the fund balance and the contribution rates (including area based nominal rehabilitation values) are intended to be reviewed, and set as part of the normal government budget process, and published prior to the start of each financial year. This annual assessment will take account of operators entering and exiting the fund, changes in the total Mining Act 1978 rehabilitation liability, and drawdowns on the fund.

4.5 Governance

The MRF is established as a special purpose account in accordance with section 16 of the Financial Management Act 2006 which will specifically hold moneys for the purpose of the fund, and will be administered by the Director General of the DMP. An independent advisory panel is established to provide expert advice to the Director General on matters relating to the administration of the MRF. The panel is to
collectively possess the suitable skills, expertise or knowledge relating to mine rehabilitation, mining industry management, the environment, and financial and legal matters. The DMP is the government agency responsible for carrying out the rehabilitation works, and all submitted data relating to areas of unreebilitated land, and MRF payments, will be publicly available. Similarly, all financial statements relating to revenue and expenditure will be published in the department’s annual reports and the State’s budget papers in accordance with the obligations under the Financial Management Act 2006. While the majority of mine sites will not be required to maintain a UPB, DMP will retain the power to impose a UPB (in addition to the obligation to make a payment to the MRF) in the case where the site poses a high risk of failure.

5 Potential variations for application in other jurisdictions

While the MRF approach has been adopted in Western Australia to provide a lower cost alternative to UPBs, and will also provide a perpetual fund to address historical abandoned mine sites, it is relevant to consider whether the potential for application in other jurisdictions; particularly African countries. This objective stems from a collaborative research program funded by the Australian Government investigating policy innovation in mine closure management, environmental risk mitigation, and rehabilitation of abandoned mine sites in Western Australia, and how these developments may be applicable to seven selected countries (Ghana, Kenya, Mozambique, Nigeria, South Africa, Tanzania, and Zambia). The Western Australian review undertaken by DMP commenced with clarifying the ‘policy problem’ – and determining the desired aim of mining securities through engagement with numerous stakeholders (DoIR 2008). It is not inconceivable that other jurisdictions may seek different aims from those adopted in Western Australia, and the authors’ initial observations are that any jurisdiction should clarify their aims early in any process. The numerous historical mining legacy liabilities and abandoned mines in each African country and associated regulations, policies, and securities systems will clearly require detailed analysis at the country and regional level. One of the key features catered for by the Western Australian reforms is the existing large mineral sector operating in the state. With more than 22,000 live mineral tenements across the state, 17,000 mapped abandoned mine sites, and more than 1,000 operating mine sites, there is a ‘critical mass’ of sites; meaning that the individual contribution for tenement holders is relatively low. Therefore, the MRF is unlikely to present the same cost savings (compared to UPBs) for jurisdictions with very low numbers of mine sites and historical legacies. For example, on the African continent, South Africa may be an appropriate candidate with a relatively large number of mine sites, and abandoned mines (MMSD 2002), and in 2012 the number of abandoned mines was estimated to be around 6,000 (AGSA 2009), with the South African government left holding the mining rehabilitation legacy. Even for countries with a lower number of operating mines and legacies, there are two potential options for comparable fund-based policy reforms. The first is to establish a fund over multiple jurisdictions; thereby building a critical mass through accumulation of mining provinces. Such an approach would present various governance challenges that would need to be resolved. The other option is to adopt a hybrid mining securities arrangement, where each site is required to maintain a UPB (at a reduced rate) and contribute to a centralised fund. Such an approach may deliver many of the advantages of a MRF (e.g. reduced costs to industry, funding for abandoned mine sites), as well as guarding against large demands upon a centralised fund to fully rehabilitate mine sites.

The research program funded by the Australian Government investigating policy innovation applicability of the Western Australian model in the seven countries on the African continent is in the initial stages of data collection and analysis. Nonetheless, preliminary research demonstrates that there are many challenges associated with the closure of current sites and historical legacy sites. These challenges are largely common across all jurisdictions and include: 1) The extent, type, number, and biophysical characteristics of historical mine closures; 2) Associated socio-political elements; 3) Governance/legislative challenges; 4) Environmental planning, operational, and management, and; 5) Financial and financial guideline implementation. However, promising advances are also apparent, including: enabling of governmental departments to fulfil their regulatory duties; reviews of current guidelines relating to mine closure planning, management, and financial quantification of mine closures; incorporation of rehabilitation and
mine closure planning early in the mining life cycle; review and reform of rehabilitation and mine closure plans throughout the mine’s life cycle in-line with relevant statutory and international standards, and; investigation of best practice measures from international examples.

6 Conclusion

It is apparent that there are certain characteristics of the Western Australian setting that make the MRF particularly attractive. Many of these characteristics do not exist in other jurisdictions, and detailed consideration of the objectives of such a reform is necessary for each region. For the Western Australian setting with a contemporary robust environmental regulatory system, it implicitly reduces the likelihood of large mine site abandonment in the present, even though there is a signification legacy from the past; the MRF is essentially a measure of last resort. Of course the primary aim is to ensure current tenement holders reabilitate mine sites instead of abandoning them. It is observed by the authors that a MRF approach would necessitate a robust underlying environmental regulatory system, and the risk of default to the fund could be high, yet achieving the various benefits outlined in this paper is attractive. Well established Western Australian mining practices and laws for management and reporting of government funds are also a major element that underpins the practicality of the MRF option. Yet, even with these arrangements, the consultation undertaken by DMP highlighted an apprehension by some stakeholders to the risk that money in the MRF would be diverted to other areas of government. The level of interest in this particular matter resulted in one of the performance principles relating to security of the money within the fund (as outlined above in this paper). While there are various options available to address these matters in other jurisdictions, in the Western Australian case the fund is held in a special purpose account (which offers the highest level of scrutiny for hypothecated funds).

A final matter of high relevance is that while Western Australia has a large number of operating mine sites which can reduce the individual payments into the fund — there are also a large number of abandoned mine sites in Western Australia (more so than many other jurisdictions). DMP maintains a public register of abandoned mine sites detailing more than 17,000 abandoned mine sites. While these abandoned sites are generally on a much smaller scale in comparison to modern mining operations, they still nevertheless present a large liability. Jurisdictions could consider this scale of abandoned mines in considering the appropriateness of an implementation of a MRF option in their jurisdiction.

References


Department of Industry and Resources (DoIR) (2008)Review of mining securities in Western Australia, Perth, Western Australia.


