

EXPLORATION DEVELOPMENT INCENTIVE: POLICY DESIGN DISCUSSION PAPER DATED MARCH 2013

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DISCIPLINE: geologist (BSc) /mineral economist (MSc, PhD in-progress)

INDUSTRY STANDING:

- Director of the Australian Institute of Geoscientists,
- Committee member of the Australasian Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets
- Australia's representative on the International Mineral Asset Valuations Committee

REPRESENTATION: All views are entirely of my own and do not reflect those of my affiliations.

DATE: 31 March 2014

QUESTIONS

Q2.1 Yes

Q2.2 Yes

Q2.3 No

Q3.1 Creating a new share class issuances is administratively complex. It may also lead to investors shunning 'normal shares', thereby **penalising existing investors** in mineral exploration juniors who cannot exit their investments under the same regime that they originally committed to. Given that there are tax incentives to hold onto shares for more than one year, this leads to divergent forces and the potential for an 'orphan class' of shares.

Q4.1 No. Quarry minerals are not difficult to find. The economics of quarry minerals relates to their proximity to market. Often the value of such industrial minerals is entirely contingent on having a localised offtake market (no buyer, no sale), whereas bulk, precious and base metals have established offtake markets (you can always sell, it's just the price that changes) but it's hard to find the product.

Q4.2 Seems adequate.

Q4.3, referring to ITEM 25 The definition of mineralisation should exclude 'Exploration Targets', which are projects that have sufficient information to make an order of magnitude tonnage-grade estimate, but insufficient information to be defined as Inferred. Exploration Targets exist in areas that are subject to a relatively high level of geological information, or involve deposits that are easy to discover from remote sensing exploration methods (such as iron). Exploration Targets are therefore relatively low risk propositions compared to true 'greenfields' exploration programs, as it only takes a handful of drill holes to establish their veracity. Companies that have Exploration Targets can (relatively) easily raise venture capital and should not be subsidised.

Q5.1 Outside area of my expertise.

Q5.2 Outside area of my expertise.

OTHER: There are additional aspect that must be included to avoid unintended consequences, these are:

- Minimum project sizes, possibly of 500 km² or more. This is to ensure that expenditure is undertaken in truly greenfields terranes, as smaller holdings may occur close known mineral camps where there is a large amount of geological knowledge, but continued expenditure may lead to a decreased rate of return on investment. The last thing the industry needs is valuable investor dollars going into heavily worked environments where the potential discovery probability is small and marginal, as ultimately this will lead to a lower value proposition. What the industry needs is game changing discoveries in 'frontier' territory.
- Minimum and maximum submissions. A minimum claim must be introduced to ensure that expenditure are not used to 'land bank'. The established and accepted *modus operandii* is 'use it or lose it', and as such any tax benefit should flow to those corporations undertaking legitimate activities. A maximum should be introduced to ensure that the benefit does not

flow to those corporations who don't have access to large amounts of venture capital (for example, a large IPO vended out of a mining company, with large capital may still qualify for the benefits, thereby shrinking the size of the pool available to 'juniors').

These two additional points are discussed in further detail under the following headings.

PROMOTION OF A FRAGMENTED INDUSTRY

In part, the exploration mandate is a function of the spatial area that is available (Singer & Menzie, 2008). If large tenement areas in the order of 1,000 km² or more are held in a single project, then there is increased likelihood of covering a mineral camp or of discoveries with a desirable value profiles (Bell and Guj, 2012). In such large tenement holdings it may also be possible to make regional prospectively assessments based on mineral-systems approaches (Hronsky and Groves, 2008; McCuaig and Beresford, 2009) which promote efficient exploration expenditure (eg more desirable target with lower unitised discovery cost). Clearly, promoting the efficiencies of scale is in the interest in the industry.

Analogies to the Canadian flow-through share scheme are often made in discussion about exploration tax incentives, however it must be highlighted for whatever reason, it is significantly different to that of Australia. Relative to the Australian market, the Canadian exploration industry is highly fragmented with there being a very large number of 'Mom and Pop' exploration companies that don't have adequate expertise or funding to undertake and sustain a dedicated exploration program. The scale of the difference is quite marked, with a dataset of 649 Canadian and 348 Australian exploration project transactions showing that half of Canadian transactions are under **23 km²** and 90% under 160 km. This sharply contrasts with Australian transactions where **half** are under **210 km²**, and 90% under 1,580 km² (Figure 1, Bell in prep).

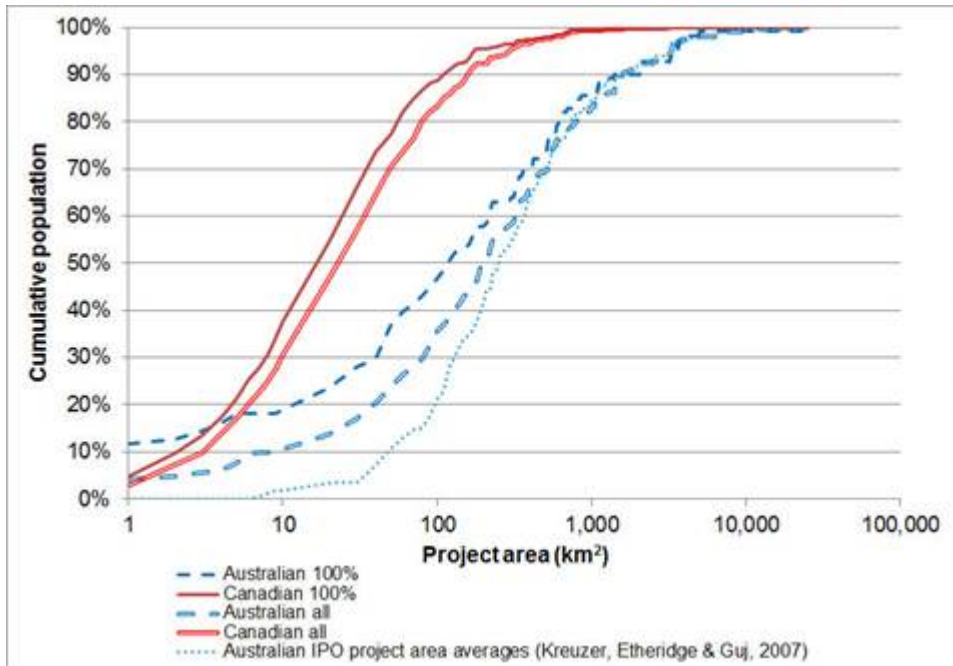


Figure 1: Australian and Canadian exploration project size frequency chart

It is possible that the EDI may have unintended consequences in that it may create an:

- incentive to break up the comparatively large Australian project areas into smaller parcels, so that they can be vended into very small corporations that have access to EDI benefits. While this may initially attract 'new money' to the exploration sector, over the longer term it may inadvertently reduce exploration efficiency and therefore the investment incentive (ie. a null proposition). For example, as the attractiveness of remote sensing decreases, there may be an inappropriate incentive to undertake expensive drill programs that might not have otherwise been commissioned if held in a large tenement package.
- incentive for large corporations to outsource their exploration activity by vending tenements into initial public offerings. As I understand AMEC calculates that the EDI would represent 22% of the value of a new float, this may create a mechanism by which large corporations can 'cash in' their exploration assets, without transferring technological, administrative and other capabilities. This amounts to a de-sophistication of the exploration sector.
- Intellectual reduction, whereby a greater portion of the industry is focussed on project scale rather than regional scale prospectivity analysis. That is, a larger number of explorers have only a smaller search space in which to practice, thereby reducing their ability to think big, effectively 'dumbing down' practices even though the individual remain equally bright.

While the risk of the above coming to full realisation isn't an imminent threat, a reduction of the risk associated with such unintended consequences may be achieved by restricting the EDI eligibility to:

- projects that cover more than $\sim 250 \text{ km}^2$ so that there is a 'status quo'; or
- projects that cover more than $\sim 500 \text{ km}^2$ (for example), to promote exploration activity in the new frontiers such as the Albany-Fraser Orogen that hosts the world-class Nova-Bollinger nickel sulphide deposit and the substantial Tropicana gold deposit.

The latter point is quite important as in Australia, the size of an exploration project is a proxy for its proximity to known deposits, infrastructure and services in a manner that is akin to the size of land parcels in real estate (Bell and Guj, 2012). Project areas that are close to known mineral camps such as Kalgoorlie are likely to be quite small, whereas large project areas are generally found in less explored areas. It is estimated that the historical probability of discovery within a true greenfields exploration area may be around 0.9% for an economic discovery, which includes 0.3% for a major discovery and 0.07% for a world-class discovery (Guj & Bartrop, 2009). In comparison, Lord, Etheridge & Uttley (2003) estimate that the probability of a discovery in a brownfields project is in the order of 4%. A collation of these and other estimates of exploration success are presented in Figure 2 from Kreuzer & Etheridge (2010). However, there needs to be caution applied to promoting the easy, but low value wins. Like science, exploration in mature terranes is an accretive process. However, what I believe the industry needs is something akin to a scientific revolution else risk entering into a cycle of ever decreasing returns. Given that true greenfield discoveries are ‘game changers’ (represented by Nova-Bollinger and Tropicana) that can lift an entire sector through a single success, it is important that there is a mechanism with the EDI that favours industry advancement along these lines. While I am not versed in policy development around exploration incentives, I believe that a minimum project size is a suitable mechanism that may provide the incentive solution, in a manner that is akin to the Canadian requirement to explore above certain latitudes to be eligible for their tax incentives.

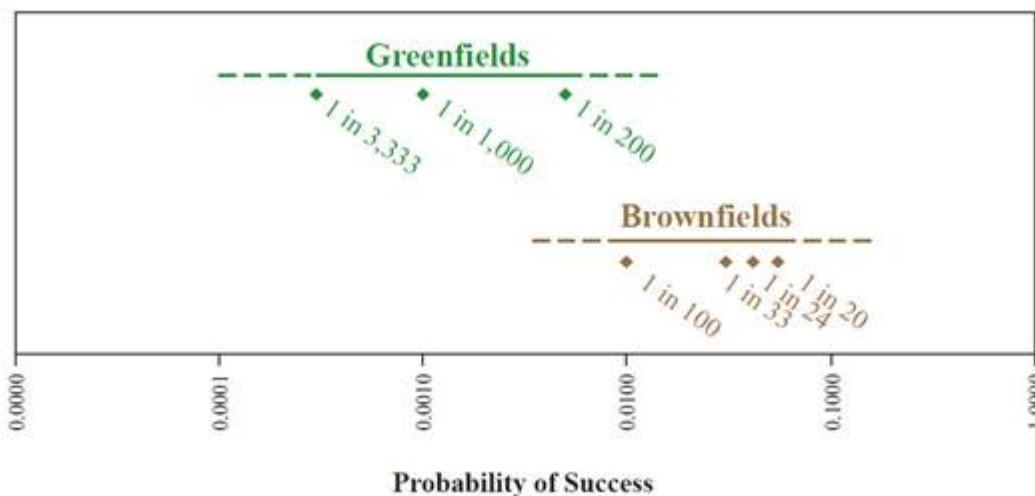


Figure 2: Australian and Canadian exploration project size frequency chart

EXPLORATION TARGETS

Clause 25, second bullet point states that: “a mineralisation that has been classified as an Inferred Mineral Resource or higher under the Joint Ore Reserves Committee (JORC)”, may not be eligible for the EDI. This definition includes projects that contain ‘Exploration Targets’ for which high risk tonnage and grade estimates are made, and as such may reasonably be interpreted as brownfields projects. Again, this issue of brownfields Exploration Targets passing as greenfields projects may be alleviated, but not entirely, through a large project area requirement (e.g. the 500 km threshold).

PROMOTION OF EXPLORATION OUTSOURCING

Clause 49 of the EDI discussion paper states that: *“Corporate shareholders would also receive benefit, but as with the imputation system, this may not be an offset”*. While taxation is a field of expertise that I would rather stay ignorant of, I think it reasonable that clarification be obtained on what Clause 49 actually entails. From a layman’s perspective, if a mid-tier mining company is able to ‘receive benefit’ there may be an incentive for that corporation to vend its exploration projects into small initial public offerings in which it retains a material interest (say 19.9%). For the mining company, this would monetise its exploration portfolio, aided by the 22% EDI value proposition, while being able to access taxation benefits. Clearly this would be an unjust situation that would also reduce the technical capacity of the exploration industry and undermine its long term value proposition. While my analysis is based on a simple line of enquiry as to what benefit a corporate shareholder actually obtains, I believe there is merit in investigating this aspect in greater detail.

MINIMUM CLAIM

In the EDI discussion paper there is no discussion on the minimum expenditure requirement to be eligible for the tax incentive. This leaves open the potential for rorts of the system and bureaucratic inefficiency.

With all but a few exceptions, the premise of holding a tenement is on a ‘use it or lose it basis’ and without a minimum expenditure trigger, there’s the potential that the EDI may be used to subsidise such holding costs without undertaking activity that genuinely adds to the scientific and economic body of knowledge. This may be addressed through a minimum expenditure requirement that is either as a total sum (\$250,000) or preferable, as a multiple of the minimum holding cost (e.g. ten (?) times the minimum spend) to reflect that tenements come in various size and holding costs. Please note that the quantum I mention are arbitrary and require empirical support. Regardless, a minimum claim requirement should not be so high as to encourage inappropriate expenditure (drilling when it should be geochemical sampling), nor so low as to encourage land-banking.

The second dimension to support the introduction of a minimum claim requirement is bureaucratic efficiency. Obviously having a public servant analyse micro-claims has high direct and opportunity costs. However, it must also be kept in mind that EDI benefits that are used to land-bank, or something equally small, has no material benefit to the investor. Furthermore, micro-distributions to investors would have no meaningful benefit to the recipient, leading to a situation where the purported market incentive is negated.

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