

Exploration budgets need attention

Internationally respected analyst Richard Schodde has pinpointed a challenge for the mining industry: improve the effectiveness of exploration efforts or fail to meet upcoming demand.

John Robertson*



Exploration hasn't been pursued in the most efficient way it could

30 DECEMBER 2017 Schodde, adjunct professor at the Centre for Exploration Targeting at the University of Western Australia and founder of MinEx Consulting, published the first instalment of 'Long-term forecast of Australia's mineral production and revenue' in October 2017.

The initial publication, commissioned by a dozen government agencies and industry associations, dealt with the long-term outlook for Australian gold production. Production was nearing its peak and about to commence a 40-year downtrend, according to the report conclusions, putting at risk at least half of the anticipated A\$15.8 billion (US\$12.11 billion) revenue from the industry in 2017.

Schodde has used some sophisticated statistical modelling to project rates of future discovery and production. The modelling estimates that, by 2057, some 4.3 million ounces of gold will be coming from future discoveries and currently undeveloped mining properties. However, these additional supplies would not be enough to compensate for the loss of 9.3Moz of annual production from depletion at existing mines.

Of course, conclusions from studies of this nature rely heavily on the assumptions that go into the modelling. In Schodde's defence, he has adopted a probabilistic approach based on a thousand feasible production outcomes from which to draw the most likely.

Interpretation will also depend on the perspective of the user. Those funding the re-

search, for example, will most likely embrace it as a way to persuade policymakers to provide more favourable exploration climates. Any threatened loss of fiscal benefits will prove a handy argument.

A more upbeat interpretation of the results would be drawn by anyone who recalls dire warnings four decades ago that all of the world's copper resources would be exhausted by the early 2000s. Since 1980, more copper has been mined than in the prior hundred years as markets have worked their magic.



Directors of exploration companies should become more willing to transfer project development to well-funded specialists

Schodde extended his gold study in a presentation at the annual Fennoscandian Exploration and Mining Conference in Finland where he showed the long-term global supply outlook for a range of nonferrous metals.

The extended analysis draws similar conclusions to those in the Australian gold study, namely, a tendency for inadequate supplies given the assumed growth in demand.

The imbalance is not significant for copper but highly pronounced for zinc, lead and nickel.

Any projected imbalance is conceptual only. If supplies are insufficient, users will have to adapt. Manufacturers will curtail production of end products or find substitute material inputs.

Prices will play a role in signalling which of these outcomes (or combination) will happen but markets will balance.

Schodde does not touch explicitly on this aspect of the adjustment but does attempt to quantify the connection between exploration spending and commodity price movements. He also measures the link between exploration activity and production to draw conclusions about how much the industry will have to spend on exploration to produce enough metal.

From an investment perspective, one statistic stands out in Schodde's impressive accumulation of data about the industry's exploration achievements. He calculates that the average time from a discovery being made to a mine first producing metal is on the rise and will average 13 years.

Of course, there will be some examples of companies making an unusually swift beeline to production. The DeGrussa and Nova-Bollinger experiences in Australia stand out but their conspicuously speedy development paths mean others are taking much longer.

The lag between discovery and production combined with the needed boost in exploration efforts has profound implications for mining investment.

As I pointed out in a September 2016 column, mine development is a series of conjunctive events. Every event in a specified sequence must occur in a pre-designed order for development success. The likelihood of this happening is extraordinarily low.

Overlaying the project-specific risk profile is the impact of macroeconomic conditions. Over the course of 13 years, at least two and possibly three economic cycles are possible.

Reflecting cyclical conditions, some period of equity markets failing to recognise the future value of mine development is likely even - against the odds - in the event of perfectly executed development plans.

Portfolio investors placing funds into development propositions through public markets are almost guaranteed an unfavourable experience, at some point, if not over the duration of their investment exposure.

In contrast to the series of conjunctive events defining a mining development, as I pointed out in my

subsequent October 2016 column, exploration is a series of disjunctive events. Disappointment at any one step in an exploration programme does not preclude eventual success, as the most successful explorers in the industry will attest.

Contrary to conventional wisdom, exploration is not necessarily riskier than mine development.

Public markets that offer timely transaction opportunities in response to single events can facilitate exploration investment better than they will cope with development financing over multiple cycles.

As well as a need for larger amounts of better-targeted spending, the balance of risks highlighted by the Schodde material implies a need for a mindset change in hundreds of boardrooms.

Feeding the ambitions of explorers to become mine operators is an inefficient use of the industry's skills, trapping capital that could be redeployed more productively in future exploration success.

To help meet the challenge Schodde has identified, directors of exploration companies should become more willing to transfer project development to well-funded specialists away from the vagaries of public markets. Projects can be re-listed once they are able to show a more readily valued income stream.

The explorers, meanwhile, should then return capital freed from asset sales to the risk-bearing shareholders. An established track record will guarantee repeated funding for subsequent endeavours.

Using relatively scarce skills and risk-friendly capital to build a more strongly flowing pipeline of discoveries would more directly confront the looming structural problem identified in the Schodde analysis.

**John Robertson is the chief investment strategist for PortfolioDirect, an Australia-based equity research and resource stock rating group. He has worked as a policy economist, business strategist and investment professional for nearly 30 years, after starting his career as a federal treasury economist in Canberra, Australia*