

West Australian gold resources: crisis or hubris?

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SUMMARY

Criticism of the exploration and mining industry for failing to find enough new deposits and open new mines is misplaced. Significant growth in the size of gold Resources on many mines of the Yilgarn Craton has occurred well after the deposit was discovered and after mining had commenced. Brownfields exploration is commonly (but not always) socially, environmentally and politically acceptable. It is easier to add to an operation than it is to permit and fund a new operation. The record of successful brownfield exploration in Western Australia is outstanding with 100% to 1000% additions to endowment recorded at many gold operations in Western Australia in recent years. This success more than covers the perceived, but not proven, short fall from greenfield exploration.

Key words: gold resources, Yilgarn Craton, brownfields exploration, greenfields exploration

INTRODUCTION

This paper takes a critical look at one commodity, gold and specifically gold-only (sometimes called orogenic) deposits in the important Archaean Yilgarn Craton of Western Australia, for which high-quality geology, Resource history and production data are widely available (Phillips, 2017; Phillips et al. in press; Vearncombe and Elias, 2017; Woodall, 1990). Some academics, consultants and politicians have for several years now highlighted a lack of new greenfield discoveries in the exploration and mining industry and described a crisis situation. Based on data compiled and analysed by Schodde (2011, 2015, recent version 2017) the Boston Consulting Group suggested a pending crisis (Koch et al., 2015). We note that the suggestions of a crisis and the pleas for remedial (government) finance are based on the data of Schodde although this is not expressly stated by that author (2011, 2015, 2017). Those who have accepted that we have this crisis have argued that there is a need for more business incentives, more so-called pre-competitive data releases (eg. academic and government programmes), additional research dollars, and improvements in education and training.

Despite it being about fifteen years since the first suggestions of a serious decline in (exploration) industry performance and of questions about the cost effectiveness of greenfield exploration (Bowler, 2002, Johnston, 2003; Schodde, 2004) there is still no indication in Western Australia today of a sustained crisis in the gold industry, be that in production, greenfields or brownfields exploration.

Gold production in Australia is sustained at about 250 tonnes (about 8 Moz) per annum, and resources as defined by the Economic Demonstrated Resources (EDR) are increasing (Britt et al., 2017). In the context of this reported crisis, it is separately reported that there is common massive growth in mineral deposit endowment after mining has commenced, i.e. brownfields exploration and growth (past production plus Resources and Reserves). Economic Demonstrated Resources (EDR) is a collective term defined as the sum of Measured and Indicated Resources, including Proved and Probable Ore Reserves and provided by Geoscience Australia (Britt et al., 2017). At the time of determination, profitable extraction or production under defined investment assumptions has been established, analytically demonstrated, or assumed with reasonable certainty. The EDR category provides a long-term view of what is likely to be available for mining (potential supply). It does not include Inferred Resources which lack the geological confidence to support mine planning.

This major role of brownfields exploration needs to be considered when discussing any perceived decline. Debate on the importance and role of greenfield and brownfield exploration is timely as the federal Australian government appears to be rejecting requests to fund initiatives such as ‘Uncover’ whose role is to avert the reputed crisis in mineral exploration (Upton, 2018; <https://www.uncoveraustralia.org.au/>).

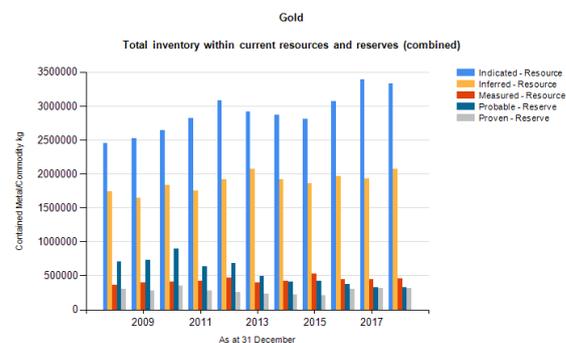


Figure 1. Total inventory of Western Australia current Resources and Reserves. There is no crisis to be found in these data. (DMIRS 2018: MINEDEX mines and mineral deposits database: Department of Mines, Industry Regulation and Safety, viewed 29-10-2018, www.dmp.wa.gov.au/minedex)

CONCLUSIONS

For the Yilgarn Craton annual resource additions have significantly exceeded mine depletion since 1980. Brownfield exploration enjoys economic benefits not available to greenfields exploration such as reduced infrastructure and regulatory costs. Criticism of the exploration and mining industry for failing to find deposits is misplaced.

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