



Costs and mine planning
23 October 2009

In the area of cost prediction and financial analysis the same issues with OEM and third party provision of information exist as in production information. The bottom line is financial analyses are regularly not delivering the right answer for appropriate decision making. In most cases production estimates are higher than what is achieved and cost estimates are lower. I previously asked the question, is it a human trait to be optimistic or is it pressure to produce results which are good enough to gain shareholder or Executive Management approval? I suspect it is a combination of both. The issue I identified last week about the continual challenge to turn resources into financial return is not easy. If the mine plan says it is not economic then shareholder money is wasted and employees don't have a job. We in the mining industry live in hope that something will change. About every 25 years they do (and it lasts for 6-8 years) but there is an unmistakable longer term downward trend in commodity prices.

Through the last resource downturn (1985 - 2001) we saw mines start with fanfare and substantial capital spent. Eventually owners lose patience and look for a buyer / partner. One from overseas who has no specific knowledge of the industry is always good because you can make ambitious predictions on future prices with no real basis for an expectation that they might be accurate. The classic example of this was when Agipcoal purchased 25% of the MIM NCA coal mines in the late 1980's. Here you had two mines (an a port) which were running at an operating loss less than five years after MIM had spent hundreds of millions of dollars building a mine and upgrading another. The financial predictions of future costs and income were simply never achieved and Agipcoal did not remain as a long term owner. What happens is that assets change hands at lower and lower prices until someone can make money or the mine is closed.

So who is responsible for the cost (and income) predictions. Each of the major mining consultants will tell you they have the cost data for all the major equipment. But my question is where does it come from as it often bears no relationship to reality. There is a bigger problem here. Cost allocation, reporting and control is

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done very badly by a large number of the mines around the world. While the quality of production monitor output is reasonably consistent and is getting better I am aghast at the quality of financial control. When a cost benchmark is done it takes 2-3 weeks on-site to access the data and put it into a format which is firstly credible and secondly can be compared with others. This makes the quality of financial analysis on a mine very dubious because very few people have the time to get the data into an appropriate form. In the majority of cases the cost of an individual piece of equipment is (much??) higher than what the mine thinks it is. So the situation evolves whereby people on the mine have a very poor idea of cost and they seek confirmation from others of costs. Unfortunately they often turn to mining consultants and suppliers of equipment. Mines seem to think that just because they do it badly most others must do it well so consultants and suppliers must know equipment operating costs. Wrong!!! For starters suppliers have a vested interest in telling you low costs and consultants have a vested interest in making the economics look good to continue to further studies. Both groups gladly use low cost data.

Apart from the poor financial control demonstrated by most mines, the following are actual reasons why overly ambitious (low) costs have been used (some are mine and some have been provided by Rob Beckman of Red Button group);

- The data that is used can be many years old and does not include appropriate escalations,
- The costs can simply be wrongly estimated, taken from a small sample of cost that is not the long term average,
- The cost is often gained from contract prices that are only a subset of total cost of the assets,
- There is no consideration of duty cycle which as a dominant factor in the cost of the equipment (eg. Steep grades, ripping for dozers, double benching for excavators etc etc)
- Finally, the costs are a \$/hr average in most cases which do not take into account the lifecycle variation of equipment cost. The cost of a single piece of equipment will vary by 50% from year to year depending on the work

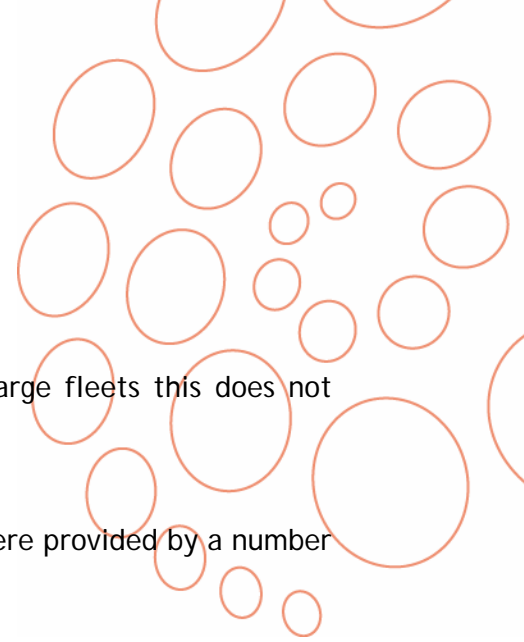
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that is done and it can be shown that even over very large fleets this does not average out year to year.

In my next column I will provide some examples of costs which were provided by a number of mine planning consultants and were just simply wrong.



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