Hillgrove Resources (HGO)
First production November 2011
Copper-gold concentrate, SA; Indonesian exploration

Recommendation
BUY

Price
27.5c

Valuation
43c

ASX / S&P Sector
Metals & Mining

On Thursday, 26 May, Intersuisse visited HGO’s Kanmantoo development.

HGO released its quarterly report on 31 May

- The mine re-development is on budget and on time; $60m has been invested, $60m remains to be invested and cash on hand is $82m
- The project is scheduled for commissioning in November 2011
- HGO is drilling at the mine to increase reserves and resources, following preliminary geological work
- HGO is rationalising to Kanmantoo and surrounds, and Bird’s Head and Sumba in Indonesia.

Investment Highlights

- Kanmantoo is expected to produce 21kt, or 46M lb, of copper, a year, at a cash cost of $1.61/lb, which compares with current copper prices of over $4.10/lb.
- HGO has valuable exploration prospects in the Kanmantoo exploration lease area and for gold in Sumba Island and copper-gold at Bird’s Head, West Papua.
- Assuming successful project delivery and exploitation of existing resources, with current spot prices, Intersuisse’s valuation is 86c.

Kanmantoo Progress

- With only 5 months to go, HGO is very confident that the development will be commissioned in November 2011
  ➢ From our site visit, Intersuisse was impressed with the steady progress on site and shares HGO’s confidence;
- HGO has been reviewing the available geological and mineralogical information and is starting a drill program to enhance its resources and reserves.
- HGO has revised its Life of Mine plan to enhance project returns.

Recommendation

Intersuisse believes that the change in MD in mid 2010 has focussed HGO to deliver on Kanmantoo, enhance the returns from Kanmantoo and focus exploration on only 2, but potentially very high impact, projects in Indonesia, where HGO has been working for many years.

In our view, the current share price is a significant discount to the value of the Kanmantoo mine re-development. Investors get exploration upside, which could have significant potential, for nothing.

We affirm our BUY recommendation on HGO.
Hillgrove Resources Limited (HGO)

HGO is re-developing the Kanmantoo mine in South Australia that was mined by Broken Hill South from 1970 to 1976, producing 4.05Mt of ore at 1.1% copper. The mine was shut when copper was about $1,500/t ($5,800/t in 2010 terms) due to falling copper prices and also extended industrial action.

Figure 1 shows that Kanmantoo is in South Australia, 55km from Adelaide, along the south-eastern freeway.

Figure 2 shows that Kanmantoo has Resources of 32.2Mt, grading 0.9% copper, 0.2g/t gold and 3.2g/t silver, of which mineable reserves are 14.8Mt at similar grades.

**Figure 2a : Kanmantoo Resources**

<table>
<thead>
<tr>
<th>Resources</th>
<th>Copper</th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>2.3 Mt</td>
<td>0.9%</td>
<td>0.2g/t</td>
</tr>
<tr>
<td>Indicated</td>
<td>22.5 Mt</td>
<td>0.9%</td>
<td>0.2g/t</td>
</tr>
<tr>
<td>Inferred</td>
<td>7.4 Mt</td>
<td>0.9%</td>
<td>0.2g/t</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32.2 Mt</td>
<td>0.9%</td>
<td>0.2g/t</td>
</tr>
</tbody>
</table>

Source : Hillgrove Resources

**Figure 2b : Kanmantoo Reserves**

<table>
<thead>
<tr>
<th>Reserves</th>
<th>Copper</th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proved</td>
<td>2.3 Mt</td>
<td>0.87%</td>
<td>0.13g/t</td>
</tr>
<tr>
<td>Probable</td>
<td>12.5 Mt</td>
<td>0.84%</td>
<td>0.18g/t</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14.8 Mt</td>
<td>0.84%</td>
<td>0.17g/t</td>
</tr>
</tbody>
</table>

Source : Hillgrove Resources

**Figure 3 : Sensitivity of Intersuisse’s valuation of HGO, of 42.7c a share**

<table>
<thead>
<tr>
<th>Annual / Total</th>
<th>Base Case prices</th>
<th>Spot prices, 31 May 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.8 Mt</td>
<td>25.0 Mt</td>
</tr>
<tr>
<td>2.4 Mt/yr</td>
<td>30.5 c</td>
<td>36.2 c</td>
</tr>
<tr>
<td>2.7 Mt/yr</td>
<td>33.2 c</td>
<td>39.6 c</td>
</tr>
<tr>
<td>3.5 Mt/yr</td>
<td>33.8 c</td>
<td>41.7 c</td>
</tr>
</tbody>
</table>

Source : Intersuisse estimates

Intersuisse believes that Kanmantoo will process much more than its currently reported Reserves.

Intersuisse’s valuation is risk weighted, to allow for uncertainties. Figure 4 shows the valuations from Intersuisse’s modelling if we remove the risk weighting.

**Figure 4 : Intersuisse’s valuation of HGO, un-risked**

<table>
<thead>
<tr>
<th>Annual / Total</th>
<th>Base Case prices</th>
<th>Spot prices, 31 May 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.8 Mt</td>
<td>25.0 Mt</td>
</tr>
<tr>
<td>2.4 Mt/yr</td>
<td>42.9 c</td>
<td>51.4 c</td>
</tr>
<tr>
<td>2.7 Mt/yr</td>
<td>45.8 c</td>
<td>55.3 c</td>
</tr>
<tr>
<td>3.5 Mt/yr</td>
<td>46.7 c</td>
<td>58.1 c</td>
</tr>
</tbody>
</table>

Source : Intersuisse estimates

Our base case valuation uses Kanmantoo’s Resources, but we believe that there is still significant potential for further mineralisation, though it has only a muted impact on valuation.

Note that Intersuisse’s base case valuation is based on HGO’s Resources, rather than Reserves. This is because Intersuisse is confident that HGO will exploit much more than the reported Reserves as :

- Measured Resources, which are the geological basis for Proven Reserves, require drilling at not more than 20m spacing, while Indicated Resources, which are the geological basis for Probable Reserves, require drilling at not more than 30m spacing;
- There are many geological features and indications of mineralisation that have yet to be drilled in accordance with the JORC Code, which was first published in 1989 (current version, 2004).
Kanmantoo: construction progress

Figure 5 shows the current open pit at Kanmantoo. It has been mined to a depth of about 140m below surface and the new mine plan is to deepen this 250m through a series of cut-backs.

Figure 5: Kanmantoo mine

Kanmantoo was operated from 1970 to 1976.

It was shut in response to low copper prices and difficult Industrial Relations at that time.

Source: Intersuisse, site visit 26 May 2011

Figure 5 also shows that the country rock is highly competent; the walls have been left for 35 years and there is only a small wall slip after this time.

In Figure 6, an adit can be seen, partially obscured by the wall slip. This shows that further mineralisation was known of and development had been carried out to exploit it as an underground mining operation.

Figure 6: Kanmantoo mine: a developed adit

The original mine planned for further underground exploitation.

Source: Intersuisse, site visit 26 May 2011

Figure 7 shows 2 drill rigs in operation as part of the mine planning.

Figure 7: 2 drill rigs in operation for mine planning

HGO is re-developing Kanmantoo in a thorough, persistent manner.

Source: Intersuisse, site visit 26 May 2011
Figure 8 shows part of the construction progress at Kanmantoo, with the stand for the primary crusher being shown, with some of the conveyor system to feed the secondary crusher.

**Figure 8 : Primary crusher**

Source: Intersuisse, site visit 26 May 2011

Figure 8 is not able to show the short trucking distance from the mine to the crusher, which Intersuisse estimates is about 700m from the crest of the open pit.

Figure 9 shows the ball mill has been installed on its stand. The framework for the flotation cells can be see immediately to the left of the ball mill, while part of the secondary crush can be see in the lower left of Figure 9.

**Figure 9 : Kanmantoo : ball mill erected**

Source: Intersuisse, site visit 26 May 2011

Figure 10 shows the Tailings Storage Facility. The first layer is complete and the second layer in about 90% completed. However, the wall linings still remain to be done.

**Figure 10 : Tailings Storage Facility**

Source: Intersuisse, site visit 26 May 2011
Resource and Reserve

There has been little exploration activity since the original Kanmantoo open cut closed in 1976. HGO hired an experienced exploration geologist to review and report on the prospectivity of the mine lease area and region.

The outcome was a report which led to the commencement of an exploration program to convert resources into reserves, and also expanding open cut resources within the Mining Lease. This program is now well underway, and exploration drilling has commenced.

HGO has also re-processed the available aero-magnetic data to adjust for extraneous influences, such as the railway nearby. The copper mineralisation is often associated with magnetite.

Figure 11 shows the outcome of this re-processed data, highlighting a series of targets to extend the resources at the mine.

Figure 11 shows that these targets link in a chain like fashion, supporting the concept that there is potentially valuable mineralisation between current identified areas of resource.

Figure 12 shows the newly revised Life of Mine plan. It shows extensions to the mineralised areas from the main pit and also voids between areas planned to be mined which are target for extensions to resources.

Resource to reserve conversion requires further infill drilling. HGO has started a 5,000m program of RC drilling in four main areas around the current optimised pit design to add to the copper resource/reserve base and extend mine life.

Conclusions

Intersuisse is confident that

- Kanmantoo will be delivered on time and on budget; and
- There is significant resource and reserve upside potential at Kanmantoo that will be realised over time.

Intersuisse affirms its BUY recommendation on HGO.
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