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KCM Valuation

Prepared for ZCI Holdings SA and Vedanta Resources Plc

ROTHSCHILD

15 January 2008

Contents

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1. Introduction, Executive Summary and Conclusion

This report has been prepared by N M Rothschild & Sons Limited ("Rothschild") pursuant to the Appointment Letter with Vedanta and ZCI. The purpose of this engagement is to establish the price (the "Option Exercise Price") at which Vedanta shall have the option to acquire ZCI's 28.42% interest (the "Interest") in KCM pursuant to the Vedanta Call Option Deed dated 5 November 2004 (the "Deed"). In conducting this valuation we have been guided by:

- the terms of the Deed;
- the determination of the arbitration dated 25 June 2007; and
- the terms of the Appointment Letter.

The unusual aspect of this valuation is that on the basis of the above, we are required to ascertain the value which we would've determined had we conducted the analysis contemporaneously with the date at which Vedanta issued notice under the Deed (12 August 2005, or the "Relevant Date"). The methodology adopted to achieve this is discussed in Section 2. While we believe this methodology has allowed us to develop a value that meets this requirement we cannot, notwithstanding the efforts of Vedanta and ZCI in this regard, be certain that we have been given access to exactly the same data that would have been made available in the case of a contemporaneous valuation. Furthermore, verbal submissions from KCM management regarding the business at the Relevant Date may have been affected by the period of more than 2 years that have elapsed. We have, however, received confirmation from each of Vedanta and ZCI that, in respect of each, to the best of its knowledge, we have been given access to all relevant information in its possession. Our valuation relies on the accuracy of this confirmation.

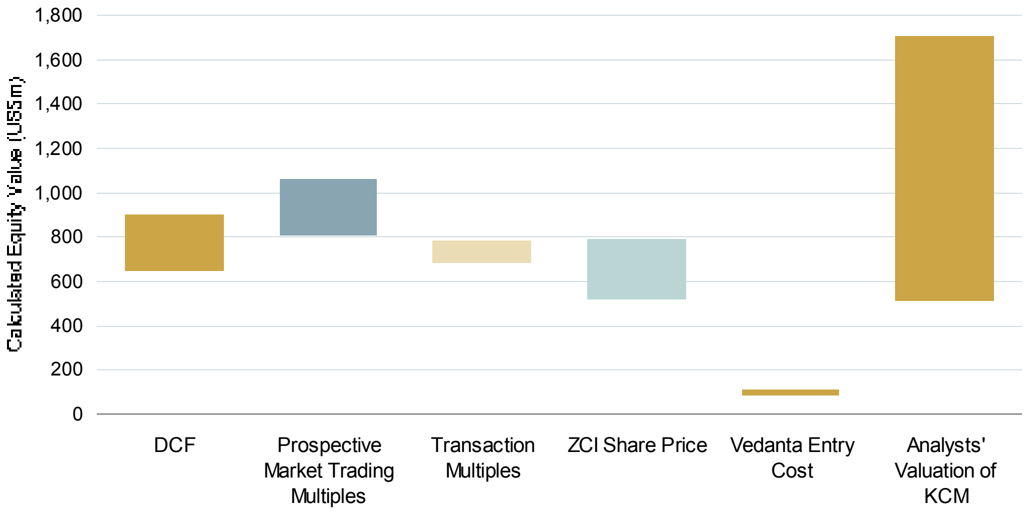
Pursuant to our mandate we are required to provide a single value for the Option Exercise Price. This is determined from "IVC" (as defined in the Deed) which in turn is based on the value of KCM as between a willing vendor and willing purchaser. In our experience, when a purchaser offers a price for an asset it will make a judgment as to the appropriate level based on all its analytical work and a broader (sometimes subjective) assessment of relevant considerations, rather than mechanically calculating a value based on a single methodology; and when accepting (or otherwise) an offer, vendors will adopt a similar approach. In determining a value we have therefore not relied exclusively on a single methodology or case but looked at all the analysis and incorporated our overall view of the asset, to make a judgment as to where the price of a transaction between a willing buyer and willing seller would have fallen at the Relevant Date.

Our principal valuation methodology is a discounted cash flow analysis. This has required a set of technical / operational assumptions to be developed. We have retained International Mining Consultants Limited ("IMCL") to develop these and its report (the "IMCL Report") is attached as an Appendix. IMCL has drawn together these assumptions based on site visits, management interviews and a review of written data. The discounted cash flow analysis is set out in Section 3. As a cross check we have also valued KCM based on comparable transactions and trading multiples available at or around the Relevant Date, and also considered the values implied by ZCI's share price shortly following that date, Vedanta's entry price to KCM and analysts' estimates at or around the Relevant Date.

The graph below summarises some of the key value ranges for 100% of the equity of KCM which we have derived from our analysis and which are described further in the relevant sections of the document:

1. Introduction, Executive Summary and Conclusion

Chart 1. Valuation Range - 100% of KCM



Notes

1. Ranges are derived as follows:

   a) DCF range is based on Rothschild's assessment of the results of the DCF analysis described in section 3;

   b) Trading multiple ranges are based on the IMCL Reference Case modified to include analyst copper price forecasts, and vary based on use of 2006 or 2007 EBITDA multiples;

   c) Transaction multiple ranges are based on the application of high and low transaction multiples to historical EBITDA; and

   d) Other ranges are based on the analysis set out in section 5

We make the following observations:

- in our experience, buyers will use discounted cash flow analysis as the primary method of valuing assets in the mining sector and we therefore place a high weighting on these figures. The range displayed reflects our judgment based on the analysis in section 3;
- the prospective market trading multiples range is based on average forward trading multiples of copper companies. For the reasons set out in section 5.2, we consider that KCM would trade at a discount to many of its peers and have put a moderate weight on this measure;
- the value from the comparable transaction multiples is based on only two transactions relating to assets that had different characteristics to KCM. We therefore place only low weight on this measure;
- we place a low weight on the market value of ZCI for the reasons given in section 5.1;
- we place no weight on the implied value from the Vedanta purchase given the very significant strengthening in the copper price from the date that the offer was originally made and the intervening decision to develop the Konkola Deep Mining Project ("KDMP"). We have nevertheless taken account of some of the fundamental characteristics of KCM which we understood led to its release by Anglo American, and to ZCI and ZCCM subsequently agreeing to sell it to Vedanta for this amount; and
- estimates of the value of KCM made by brokers are highly inconsistent. This perhaps reflects the paucity of information in the public domain. We believe neither buyer nor seller

would place any weight on these figures as a basis for determining underlying value and accordingly neither have we in our assessment.

In summary, the quantitative methodologies upon which we have placed weight in determining value and the weightings are set out in the table below:

Table 1. Quantitative Valuation Methodologies

Methodology	Indicated Valuation Range for 100% KCM Equity (US$m)	Weighting Applied
Discounted Cash Flow	650-900	High
Prospective Market Trading Multiples	800-1100	Moderate
Comparable Transaction Multiples	700-800	Low
Market Value of ZCI	520-790	Low

Source **Rothschild Estimates**

We have also looked at a number of potential upsides that are not expressly incorporated in the core discounted cash flow analysis. In particular, we have highlighted the Chingola Refractory Ores as a source of potential significant incremental value and a discounted cash flow analysis suggests this may be ±US$90m. However, even an aggressive buyer would have been mindful that the assumptions underlying it are subject to very significant uncertainty and need technical confirmation. We also believe a buyer might have identified incremental value from alternative smelter developments and option value relating to Nchanga.

We think any buyer (or seller) would, however, also take account of a number of concerns and risks associated with KCM. In assessing IVC we have therefore also taken account of:

- the history of the assets and specifically the long period of underperformance under Government control and associated ingrained inefficient work practices reinforced by strong union representation;
- the inability of Anglo American to make significant operational improvements, its subsequent withdrawal and the absence of any real evidence at the Relevant Date that Vedanta was making headway improving performance;
- the fact that at the Relevant Date the producing operations were high cost and short lived and that the bulk of the value relied upon a major investment program to exploit the Konkola Deep ore body; and
- the environmental issues associated with the operations: while the exposure was limited through contractual arrangements with the Government of Zambia, a buyer may have had significant concerns about incremental costs and/or reputational issues for the owner.

In summary, at the Relevant Date, and notwithstanding the increase in copper price and the decision to proceed with KDMP, KCM would have been seen as a ‘difficult’ asset. We have sought to reflect these considerations through:

- IMCL taking account of historical performance in its analysis; and
- incorporating some of these factors in developing downside cases for the DCF analysis.

However, these considerations are not reflected in the prospective market trading multiples and the transaction multiples and, by their nature, are difficult to reflect properly in DCF analysis.

Taking all these factors into account we have determined IVC to be US$750m. The table below converts IVC to the Option Exercise Price in accordance with Schedule 3 of the Deed:

Table 2. Calculation of Option Exercise Price

Item	Value
Issued ordinary capital of KCM (ASC)	1,098,677,473
Vedanta Call Option Shares (ST)	312,244,138
ST / ASC	28.42%
IVC	US$750m
Option Exercise Price (ST / ASC x IVC)	US$213.15m

Source **Company reports, Vedanta Call Option Deed**

We conclude that the Option Exercise Price is US$213.15m.

As required by the Deed, we have not considered KCM's deferred share capital in the above calculation.

This is the Option Exercise Price as at the Relevant Date and hence does not take account of any distributions made by KCM or the time value of money since this date.

2. Methodology

2.1 Terms of Reference

Rothschild's role pursuant to the Appointment Letter is to determine the "Option Exercise Price" (as defined in the Deed) as at 12 August 2005 in accordance with Schedule 3 of the Deed.

The Deed states that the Option Exercise Price is to be determined in accordance with the following provisions:

$$\frac{ST}{ASC} \times IVC$$

Where:

ST	=	the aggregate nominal value of the Vedanta Call Option Shares (excluding any Deferred Shares forming part of the Vedanta Call Option Shares);
ASC	=	the aggregate nominal value of the issued ordinary share capital of KCM at the relevant time; and
IVC	=	the value of KCM as a going concern (including goodwill) and as between a willing vendor and a willing purchaser at the relevant time as agreed between ZCI and Vedanta or (in default of such agreement) as determined by the independent investment bank.

Save in the context of an exercise of the Vedanta Call Option on the basis of the circumstances described in paragraph (b) of the definition of "Vedanta Option Exercise Period" having occurred, in determining IVC full account shall be taken of:

a) the projected benefits of the board of directors of KCM resolving to proceed with the Konkola Ore Body Extension Project; or

b) the detrimental or adverse effects of the board of directors of KCM either (i) not resolving or (ii) resolving not to proceed with the Konkola Ore Body Extension Project,

on the value of KCM as a going concern, but no control premium shall be included in the value of KCM.

The Appointment Letter requires that in applying these provisions Rothschild must take account of the decision of the board of directors of KCM to proceed with the Konkola Ore Body Extension Project.

Rothschild is required to deliver its determination of the Option Exercise Price in the form of a report to Vedanta and ZCI (the "Report"). The Report is required to include a description of the key assets and operations of KCM (by value) and Rothschild's view of, in its judgement, the key economic parameters and technical consultants view of, in their judgement, the key technical parameters together with details of the valuation methodologies used (or considered) and the relative weight attached to each in reaching the final determination of the Option Exercise Price.

Rothschild was required by the terms of the Appointment Letter to:

- retain technical consultants on terms and conditions agreed between Rothschild and the consultant and disclosed to Vedanta and ZCI;
- schedule a joint meeting with Vedanta and ZCI at the commencement of the engagement to receive written or oral submissions from Vedanta and ZCI; and

2. Methodology

- schedule one additional joint meeting with Vedanta and ZCI towards the end of the performance of the services but prior to delivery of the Report to review the extent and completeness of the information Rothschild has considered in preparing the Report.

In accordance with these requirements Rothschild:

- appointed IMCL as technical consultants, and received the IMCL Report which sets out the technical consultants view of the key technical parameters associated with the KCM assets;
- met with Vedanta and ZCI and received certain submissions during the course of the mandate (most notably the report of Puma Resources Limited dated 8th November 2007 on behalf of ZCI and Vedanta's response received via email on 19th November 2007); and
- met with Vedanta and ZCI on 30 October 2007 to review the extent and completeness of information Rothschild has considered in preparing the Report.

In preparing the Report Rothschild was permitted to retain external tax and / or legal consultants to assist in the review of information supplied to it during the course of executing the Services. We have received certain tax advice from Cosmas Mwananshiku, a partner at Ernst and Young Zambia.

2.2 Overall Methodology

The standard methodology used in the mining industry for valuing assets is a discounted cash flow ("DCF") valuation. Accordingly, the main focus of our work has been conducting a valuation of this type.

Specifically, we have, on the basis of technical assumptions provided by IMCL, constructed a detailed cash flow model for KCM. The assumptions underlying the DCF analysis and the results of it are set out in Section 3. We have also considered other approaches. We do not believe that any of these approaches can, by its nature, reflect the intrinsic value of KCM to the same degree as a DCF valuation. However, they are useful as a cross check on value and to the extent these produce different results to the DCF valuation account may be taken of them when assessing value. In Section 5 we have considered (but not necessarily taken account of) the following valuation methodologies: the stock market value of ZCI; trading multiples of comparator companies; the Vedanta purchase of KCM and the multiples relating to the sale and purchase of other copper assets. We have also considered brokers' estimates of the value of KCM at or around the Relevant Date.

In the balance of Section 2 we have summarised the methodology we have adopted to address a number of high level issues and considerations which are broadly common to each of the individual valuation methodologies.

2.3 Data Sources

In developing technical and operational assumptions for the valuation IMCL has relied upon information gathered from KCM and its shareholders. The sources used are documented in the electronic data room to which both Vedanta and ZCI have had access. Each party has confirmed to us that it is not aware of any further information in its possession that would have a material effect on our valuation.

We are required to value the business at the Relevant Date based on contemporaneous information (i.e. without the benefit of hindsight). Accordingly we (and IMCL) have aimed wherever possible to use information dated prior to 12 August 2005. We have, however, also had access to and reviewed certain information and documents arising or dated after this date. These have only been incorporated into the analysis:

- if and to the extent that there is no other, or only limited, relevant information at or shortly prior to the Relevant Date to inform us on a particular topic; and
- such documents / information can reasonably be expected to reflect views and expectations at the Relevant Date.

In considering information or documents arising or dated after the Relevant Date care has been taken to ensure that we have not incorporated any information or facts that emerged after 12 August 2005 which are not in line with what might reasonably have been expected at the Relevant Date.

One particular challenge is the absence of a comprehensive mining plan and associated set of management projections prior to the Relevant Date. In our experience most companies would maintain an up-to-date document of this type as a planning tool. The absence of this may reflect the fact that Vedanta had only acquired the business relatively recently and was still developing its plans for the business. As discussed in the IMCL Report, the valuation is therefore based upon:

- the Life of Mine plan ("LOM") dated October 2005, subject to the qualification set out above regarding the use of information post the Relevant Date;
- the KDMP Feasibility Study dated May 2005;
- historic performance; and, importantly,
- IMCL's professional assessment as to what, taking account of the above, it would have expected a buyer of KCM at the Relevant Date to have assumed.

2.4 Definition of Option Exercise Price

Schedule 3 of the Deed requires that the Option Exercise Price be determined with reference to IVC which is "the value of KCM as a going concern (including goodwill) and as between a willing vendor and a willing purchaser at the relevant time." In developing the valuation it is therefore necessary to ascertain the valuation that would be appropriate in the context of a transaction of this type. In so doing we believe it is reasonable to assume:

- a seller would generally only be willing to proceed with the disposal of an asset on the basis that it is confident that the amount the buyer has offered to pay is the best price available at that time. Usually it satisfies itself in this regard by running a competitive auction and selling to the party that offers the highest price; and
- the willing buyer will be applying valuation parameters that it believes on the balance of probability the business will be able to meet. However, as the selected buyer will have been the party that has offered more than anyone else, its assumptions will on balance have been more aggressive than the "average bidder", whether as a result of its having greater confidence in future improvements in performance, or as a result of it having a generally more optimistic view of the future (e.g. in relation to copper prices) and/or a greater willingness to place some on upside potential.

In directing IMCL to develop technical assumptions we have asked it to reflect these considerations and have adopted a similar approach in our own analysis. In so doing we have, however, used our commercial judgement to keep our assumptions within the bounds of what a rational buyer might have assumed based on the information which would likely have been available to it at the Relevant Date.

Schedule 3 of the Vedanta Option Deed requires that "no control premium should be included" in the valuation. This is somewhat inconsistent with the fact that the value is to be based on "the value of [the whole of] KCM … and as between a willing vendor and a willing purchaser". Such purchaser would, pursuant to such a hypothetical transaction, be automatically acquiring control. We note that similar language is included in the ZCI/ZCCM Call Option Deed which determines the basis of valuing Vedanta's controlling stake. We have adopted the following approach which in our judgment best addresses this apparent inconsistency:

- in developing the valuation assumptions we have assumed that the buyer would be doing so on the basis that KCM will be managed and operated in a manner to maximise the value to its owner; but
- we have not incorporated into the value any synergistic or other strategic benefits that control might provide a willing buyer and which certain types of buyers may well have reflected in the price they would be willing to pay in the form of a control premium or other uplift over the standalone value.

The Deed required goodwill to be included when valuing IVC. Goodwill represents the future economic benefit arising from assets that are not capable of being individually identified and separately recognised. The methodologies we have considered all focus on the aggregate economic value (as opposed to a value based on individual assets or based on accounting metrics) and accordingly goodwill will automatically be included in the values derived.

2.5 Impact of Contractual Arrangements between the Shareholders and the Company

At the Relevant Date certain contractual obligations existed between the shareholders and the Company.

We have reviewed the New Shareholders Agreement. The bulk of the provisions of this document relate to control arrangements and hence have no impact on value of the Company itself on the basis that these would fall away following the hypothetical sale that is the basis of establishing IVC. There are, however, certain funding obligations placed on Vedanta. These relate to the provision of debt to meet funding shortfalls and in respect of the development of KDMP. These could potentially confer value on KCM from Vedanta. The Management Agreement also provides payment to Vedanta for certain services provided to KCM.

The Deed requires the value to be derived from "the value of KCM (including goodwill) and as between a willing vendor and a willing purchaser". We therefore only believe that it is appropriate to consider these provisions for the valuation if they would survive a sale of the entire business. Pursuant to its terms, the Management Agreement would terminate if KCM were sold to a third party. However, termination of the New Shareholders' Agreement requires the mutual consent of all the parties to it. In reality the nature of the funding arrangements is such that it is unlikely any party would be willing to continue to make this type of commitment unless it was continuing to manage the company. Thus, as a condition of the sale of the whole company, Vedanta would likely require the Shareholders' Agreement be terminated. While it could be argued that the other shareholders might require some compensation for this, in return Vedanta might claim its control rights should entitle it to a disproportionate share of the proceeds. Thus, we would argue that although there are arrangements between KCM and its shareholders, the intended purpose of these arrangements is to transfer funding obligations (and hence value) between shareholders. The Deed requires us to value IVC based on a sale of 100% of KCM (as opposed to valuing a particular stake) and therefore we have not considered these in the valuation.

We would also note that the funds are provided at market rates (in relation to the KDMP linked loan) or at a rate of interest that appears to be intended to reflect the effective cost (in the case of the shortfall funding). As Vedanta controls the business it also has some latitude to determine whether funding is required under these provisions.

We have, however, included in the projections the requirement to build up the Environment and Terminal Benefits ("ETB") Cash Reserve Account. The principles underlying these arrangements are in line with what is established elsewhere through legislation and, even if the Shareholders' Agreement were terminated, we think it is reasonable to assume that these arrangements (or some equivalent) would be imposed on a new owner by the Government.

3. Discounted Cash Flow Analysis

3.1 Overall Approach

Rothschild has prepared a financial model to forecast cash flow projections for KCM. These projections have been:

- forecast in nominal US$;
- projected out until 2041, which is immediately following the forecast closure of KDMP based on the assumptions used; and
- projected from the Relevant Date (this cut-off has been determined through appropriate pro-rating of the 2005/6 financial year).

For the purposes of determining the net present values we have discounted the pre-finance post-tax cash flows back to the Relevant Date.

3.2 Base Case Operational Assumptions

As discussed in Section 1 and Section 2.1, IMCL have been retained to develop a series of technical and operational assumptions to allow preparation of cash flow forecasts for a DCF analysis. These assumptions have been used to generate a reference case set of cash flow projections (the "IMCL Reference Case"). The assumptions they have provided to us and the rationale therefor are set out in the IMCL Report which is attached as Appendix 1. We would, however, make a number of high level observations:

- IMCL were, in accordance with their Terms of Reference, asked to prepare assumptions that reflected the most likely outcome based on their understanding of the business and expectations at the Relevant Date using their technical expertise. Given the nature of the exercise, there is inevitably a degree of subjectivity in making assessments and consequently Vedanta, ZCI or another third party technical consultant would not necessarily have reached the same conclusions. We also note that IMCL has explicitly and correctly made its assumptions without the benefit of any hindsight, and any assessment of its assumptions must be made on the same basis;
- in assessing the "most likely outcome" at the Relevant Date we have, for the reasons set out in section 2.4, asked IMCL to assess what a winning bidder might use when preparing a valuation in the context of a competitive auction. This implies a less conservative standard than IMCL might apply if, for example, it were reviewing a project on behalf of lending banks. As part of this we have asked IMCL to identify any opportunities within KCM to realise additional value. Our views on the value of these opportunities are assessed in Section 4;
- given the passage of time it was not practical for IMCL to re-estimate every technical assumption. Accordingly it has used the LOM as a starting point. IMCL has examined each of the numbers provided to it in the LOM. To the extent that IMCL's judgement is that a particular assumption appears broadly reasonable in the context of this exercise it has adopted this figure as an appropriate basis for the valuation. Where this is not the case it has developed a revised assumption which it believes better reflects what a willing buyer might have used at the Relevant Date; and
- while many of the changes IMCL has incorporated have the effect of increasing the value of the business, it has also made adjustments that have the opposite effect, where it believes that the LOM projections were more optimistic or aggressive than a winning bidder might have adopted at the Relevant Date.

3. Discounted Cash Flow Analysis

The tables below summarise the principal changes which IMCL has made to the assumptions in the LOM and the rationale it has provided. These summaries are provided for convenience only and each is discussed in more detail in the IMCL Report.

Table 3. Changes to LOM Assumptions: Konkola

Item	Description
Life of mine	Extension of life of mine from 2035 to 2041 due to assuming that 80% of inferred resources would eventually be utilised in mining operations.
KDMP start-up	Increase in the time required to reach the 6mtpa plateau production level to reflect IMCL's views on the time required to mobilise a contractor to undertake the KDMP mine expansion works and the time required to ramp up KDMP ore production due to a reduction in assumed mid-shaft hoisting capacity at no 4 shaft.
Concentrator performance	Increase in assumed concentrate grade from 35% to 41% to reflect historical results and expected performance of new and upgraded plant.
Labour force	Additional reduction in estimated labour force requirements at KDMP due to assumption of productivity increases greater than those forecast in the KDMP Feasibility Study.
Sustaining capital expenditure	Reduction in sustaining capex from US$10m to US$5m in 2006-2011 as this capital expenditure is assumed to be captured in the expansion project costs. Increase in sustaining capex from US$10m to US$15m from 2016-2022 as equipment requires replacement, and reduction in capex from US$20m to US$15m post 2022.
Closure costs	Increase in expenditure for closure and ongoing monitoring from US$7.3m to US$10.5m.

Source **IMCL Report, as summarised by Rothschild**

3. Discounted Cash Flow Analysis

Table 4. Changes to LOM Assumptions: Nchanga

Item	Description
Underground mine life	Two year increase in life of mine due to assuming that 80% of inferred resources would eventually be utilised in mining operations.
Open pits mine life	Extension to life of mine and increase in ore production due to inclusion of Fitwaola resources in the IMCL plan as reserves (less allowances for mining loss and dilution) and adjustments to assumed production at NOP and COP F and D pits.
Concentrate grade	Increase in forecast concentrate grade from 35% to 38%, in line with historical averages.
Concentrator recoveries	Downward adjustment to concentrator recovery to reflect decreased acid insoluble copper grade of mined production which was not reflected in the LOM.
TLP feed copper grades	Increase in grades due to increase in acid soluble copper grade of mined production which was not reflected in the LOM.
East Mill life	Extension to East Mill operating life in order to enable stockpiled open pit ores to be treated.
TLP life	Extension of TLP life to enable all tailings to be processed by 2015/16.

Source **IMCL Report, as summarised by Rothschild**

Table 5. Changes to LOM Assumptions: Nkana

Item	Description
Smelter recovery	Increase in copper recovery to 95.0%, due to assumed upgrade of smelter.
Coal and fuel cost	Decrease in coal and fuel costs to reflect estimated consumption rates.
Power	Increase in power costs to reflect additional consumption resulting from installation of blister section.

Source **IMCL Report, as summarised by Rothschild**

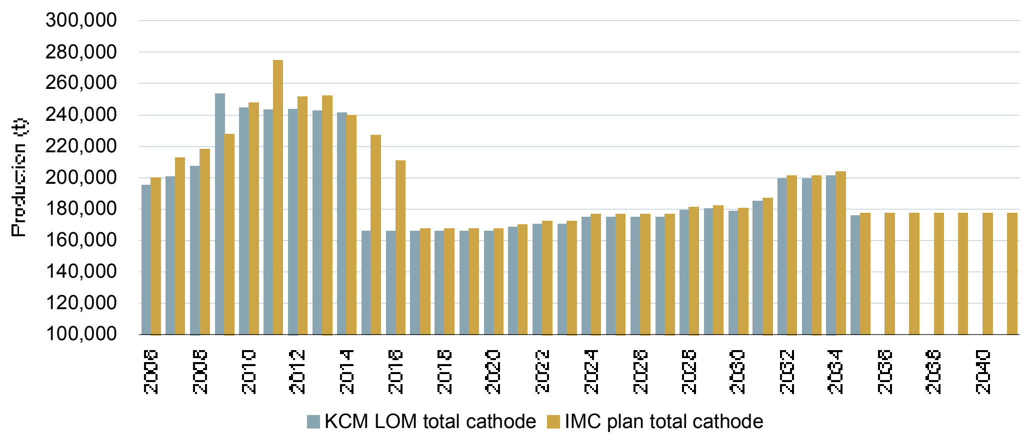
The key variables that flow from the IMCL Report to the DCF analysis are production volumes, operating costs and capital expenditures. These are summarised in turn below:

3.2.1 Production

The chart below shows that in both the IMCL Reference Case and the LOM, total copper cathode production increases in the short to medium term as KDMP comes on stream but then declines as production from Nchanga (first underground and then open pit) and the satellite pits declines:

3. Discounted Cash Flow Analysis

Chart 2. Copper Cathode Production - IMCL Reference Case and LOM



Source : **IMCL Report, LOM**

The key differences between the IMCL Reference Case and the KCM LOM are that:

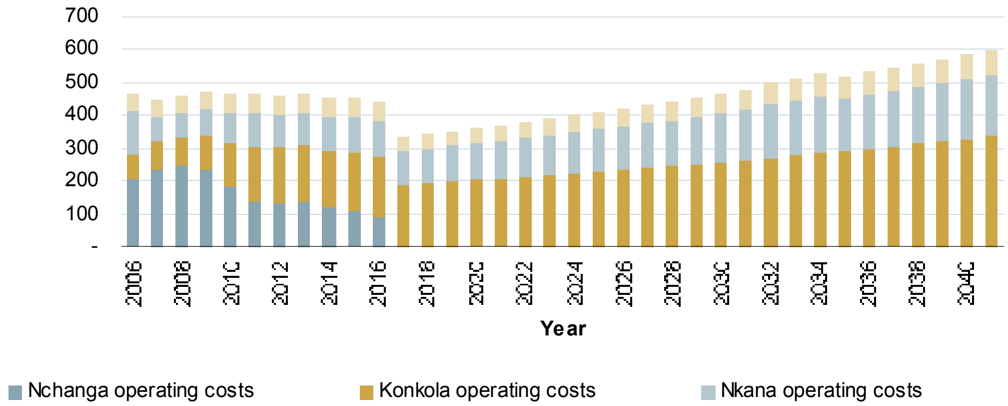
- overall copper cathode production is marginally higher in the first year of operations in the IMCL Report when compared to the LOM forecasts, mainly due to the LOM forecasts (which were prepared slightly after the Relevant Date) incorporating additional periods of below budget actual performance;
- production in the IMCL forecasts is lower in 2009 as the LOM assumes that KDMP has commenced ramping up whereas the IMCL Reference Case delays the ramp up;
- production in the IMCL forecasts is higher in 2011 as IMCL assumes the continuation of open pit operations beyond the LOM's close down date and higher recoveries at the upgraded Nkana smelter;
- production in the IMCL Reference Case is higher in 2015 and 2016 as the IMCL forecasts assume that the Nchanga mine life is extended; and
- production is then reasonably consistent between the IMCL projections and the LOM forecasts until 2036, at which point the IMCL projections show production at Konkola continuing due to the assumed increased resources available, which is not reflected in the LOM.

3.2.2 Total and Unit Operating Costs

The chart below shows that IMCL projects total operating costs to be broadly flat until 2016, at which point they are anticipated to decline significantly as Nchanga operations cease. Beyond 2016 operating costs are projected to increase in nominal terms but are relatively constant in real terms:

3. Discounted Cash Flow Analysis

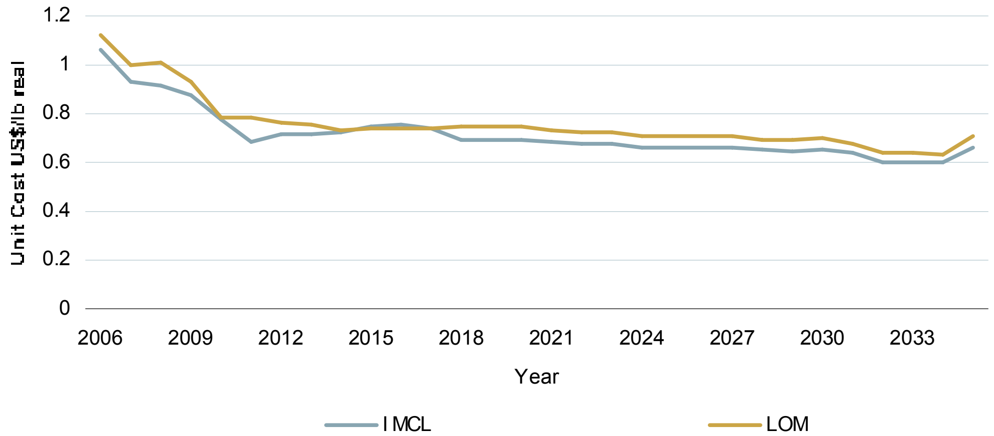
Chart 3. Operating Cost Breakdown: IMCL Reference Case Forecasts (US$m nominal)



Source: **IMCL Report**

In unit cost terms, the IMCL forecasts are somewhat below the LOM forecasts, mainly due to IMCL's assumption of manpower, consumables and stores and spares cost reductions across most operations. This is illustrated by the following chart:

Chart 4. Unit costs (US$/lb real)

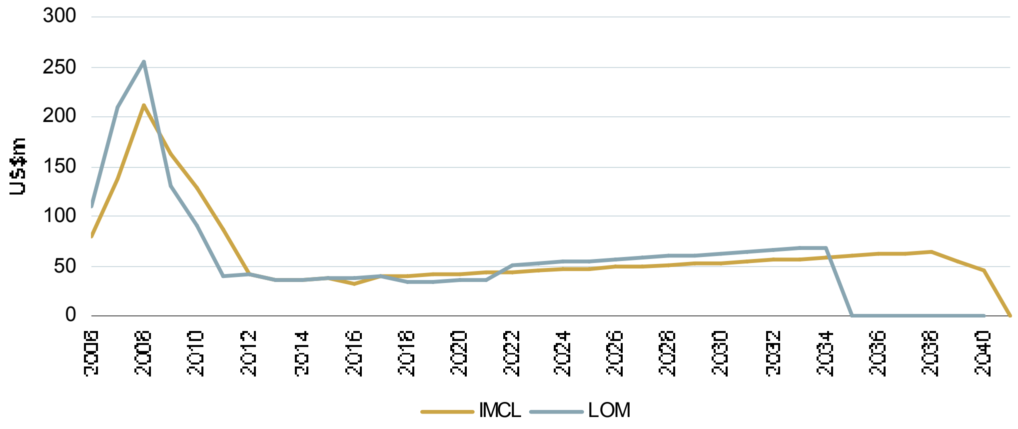


Source **IMCL Report, LOM**

3.2.3 Capital Expenditure

The key difference in capital expenditure forecasts relates to the timing of KDMP expenditure, reflecting the deferred development assumed by IMCL, as illustrated by the following chart:

Chart 5. Capital expenditure Forecasts



Source **IMCL Report, LOM**

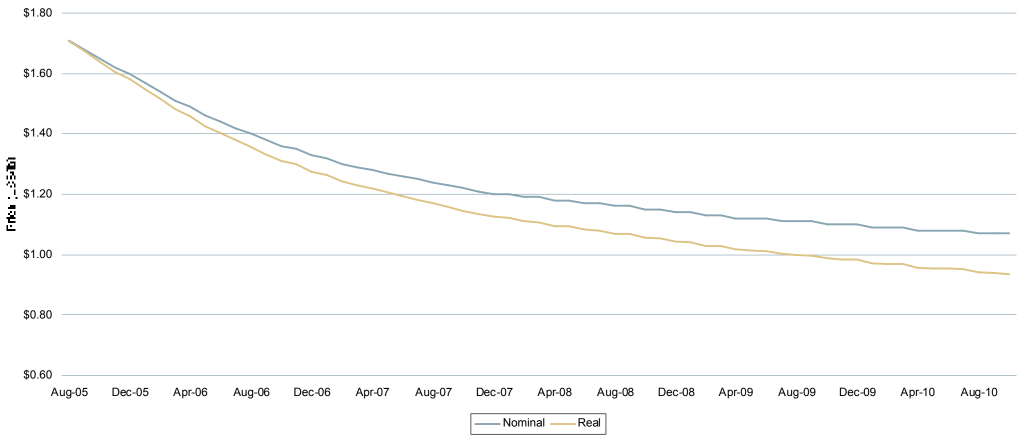
3.3 Copper Price Assumptions

The copper price assumptions for the DCF analysis need to reflect the copper price levels a buyer would have used in valuing the business at the Relevant Date. We have sought to determine this by looking at a number of information sources.

3.3.1 Forward Prices

The following chart shows the forward curve for copper as at the Relevant Date. To generate a real price curve the nominal prices quoted have been converted to real terms based on the inflation assumptions set out in section 3.4.1:

Chart 6. Copper Forward Curve – 12 August 2005



Source **Bloomberg**

The forward price for a particular calendar year has been calculated by taking an average of the monthly series for that year. The results are set out in the table below:

Table 6. Copper Prices – Forward Contracts – Calendar Years (US$/lb)

	Period ending 31 December					
Average Rate	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Nominal	1.65	1.44	1.26	1.17	1.12	1.08
Real	1.64	1.40	1.19	1.08	1.01	0.95

Source: **Bloomberg, Rothschild estimates**

Notes

1. 2005 represents the average of August to December 2005 contracts;
2. 2010 represents the average of January to October contracts (which represent the latest delivery date for which LME contracts were available as at the Relevant Date); and
3. Other years represent full calendar years.

As the DCF model periods end on 31 March in each year, we have converted the calendar year forecasts to forecasts that reflect this assumption. These are shown in the table below:

Table 7. Copper Prices – Forward Contracts – Financial Years (US$/lb)

	Period ending 31 March				
Average Rate	**2006**	**2007**	**2008**	**2009**	**2010**
Nominal	1.61	1.38	1.23	1.16	1.11
Real	1.59	1.33	1.16	1.06	0.99

Source **Bloomberg, Rothschild estimates**

Notes

1. 2006 represents the average of August 2005 to March 2006 contracts.

3.3.2 Broker Forecasts

We have sourced broker forecast data in order to develop a consensus of brokers' forecasts of copper prices. In selecting the reports in our sample we have preferred those that were both reasonably contemporaneous with the Relevant Date and which included long term price forecasts.

Where appropriate we have adjusted the data to express it in real terms using the inflation assumptions set out in section 3.4.1. The forecasts we have used are set out in the following table:

Table 8. Copper Prices - Broker Forecasts (US$/lb)

Source + Date	Basis	2005	2006	2007	2008	2009	2010	LT
Citigroup	Nominal	1.38	1.15	1.00	-	-	-	-
20 July 2005	Real	1.37	1.11	0.94	-	-	-	0.95
UBS	Nominal	-	-	-	-	-	-	-
22 Jul 2005	Real	-	1.33	1.22	1.15	1.15	1.15	0.94
Goldman Sachs	Nominal	1.25	1.11	1.21	1.30	1.35	-	-
02 Aug 2005	Real	1.24	1.07	1.14	1.20	1.21	-	0.86
Morgan Stanley	Nominal	-	1.37	1.21	1.06	-	-	-
04 Aug 2005	Real	-	1.32	1.14	0.98	1.00	1.00	1.00
Deutsche Bank	Nominal	1.42	1.36	1.30	1.23	1.20	-	-
09 Aug 2005	Real	1.41	1.31	1.22	1.13	1.08	-	0.94
Mean	Real	1.34	1.23	1.13	1.12	1.11	1.08	0.94
Median	Real	1.37	1.31	1.14	1.13	1.11	1.08	0.94

Source **Analyst Reports**

Notes

1. 2005 estimates have only been included in the table where either a second half or 4th quarter estimate was available. Specifically:
   a) Citigroup's 2005 estimate relates to 2nd half 2005;
   b) Goldman Sachs' 2005 estimate relates to 4th quarter 2005; and
   c) Deutsche Bank's 2005 estimate relates to 2nd half 2005.
2. Morgan Stanley states that its long term price assumption applies from 2009 onwards. UBS's long term price assumption applies from 2013 onwards (prices in 2011 and 2012 are as for 2010 at US$1.15/lb). Other brokers did not provide a commencement date for their long term price assumption.

3.3.3 Economic Consultants

We have reviewed forecasts from economic consultants at or around the Relevant Date. We have adjusted these forecasts where appropriate into real terms using the same methodology as was applied to the analyst forecasts. The results are presented below:

3. Discounted Cash Flow Analysis

Table 9. Copper Prices – Economic Consultant Forecasts (US$/lb)

Source + Date	Basis	2005	2006	2007	2008	2009	2010
EIU	Nominal	1.42	1.19	0.95	1.07	1.10	-
April 2005	Real	1.41	1.15	0.90	0.98	0.99	-
AME	Nominal	-	-	-	-	-	-
July 2005	Real	1.44	1.22	1.04	0.91	0.95	1.00
Brook Hunt	Nominal	1.58	1.25	-	-	-	-
August 2005	Real	1.57	1.21				
Mean	Real	1.47	1.19	0.97	0.95	0.97	1.00
Median	Real	1.44	1.21	0.97	0.95	0.97	1.00

Source **Consultant Reports**
Notes
1. AME assumes that prices remain at US$1.00/lb until 2015, at which point they decline further to US$0.84/lb.

3.3.4 Independent Expert Reports

We have also reviewed publicly available "independent expert reports" relating to copper asset valuations. The copper price assumptions used in these reports are presented in the table below:

Table 10. Copper Prices – Independent Expert Forecasts (US$/lb)

Source	Date	2005	2006	2007	2008	2009	2010	LT
Grant Samuel	04 Jan 2005							
- High		1.30	1.20	1.10				1.05
- Low		1.20	1.10	1.00				0.95
- Average		1.25	1.15	1.05				1.00
Deloitte	12 October 2005	1.65	1.49	1.30	1.21	1.15	1.08	1.00

Source **Independent expert reports**
Notes
1. Prices represent series selected by independent experts in the context of preparing valuations for Western Mining (in the case of Grant Samuel) and Equatorial Mining (in the case of Deloittes) which were in each case required as a result of each company being the subject of a public offer.

In both cases all forecasts are in real terms. Though the Grant Samuel report pre-dates the Relevant Date by some 8 months and the Deloitte report was issued shortly after the Relevant

Date we believe they are instructive in demonstrating that, although short term price forecasts had increased due to the run-up in copper prices in the period preceding the Relevant Date, there was still a general reluctance in the market to increase long term price assumptions to levels approaching those prevailing in the spot market.

3.3.5 Summary

The forecasts we have applied to the IMCL Reference Case are set out in the table below:

Table 11. Copper Prices – Forecasts Used for IMCL Reference Case (US$/lb)

	Year ending 31 March					
Average Rate	**2006**	**2007**	**2008**	**2009**	**2010**	**LT**
Nominal	1.61	1.37	1.23	1.15	1.11	N/A
Real	1.59	1.33	1.16	1.06	1.00	1.00

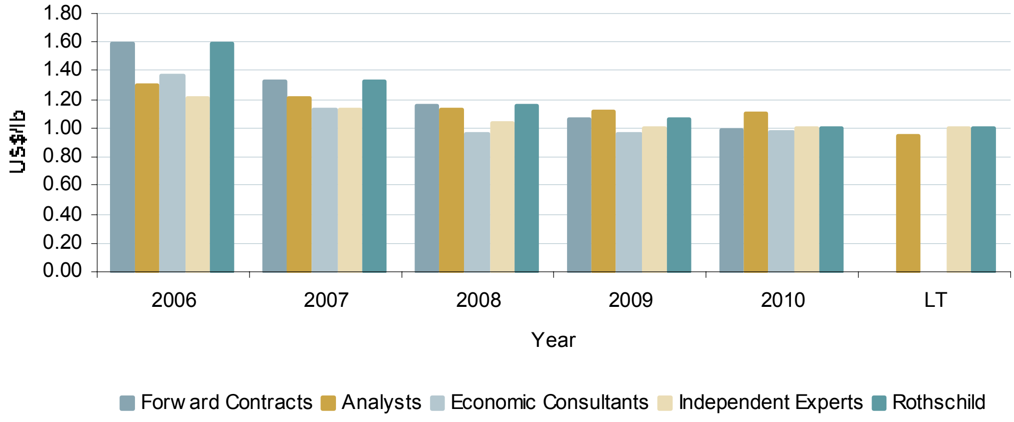
Source **Rothschild estimates**

The basis for our adopting these forecasts in the Reference Case is as follows:

- for the period until March 2009 we have used the forward price for copper. This is broadly in line with the other forecasts and, importantly, reflects the price at the Relevant Date, whereas the other forecasts would not take account of movements between the date they were published and the Relevant Date. We also note that use of forward prices is a common approach adopted by companies and valuers. While the liquidity of the forward market is limited after +/- 24 months (reducing the ability to realise these prices) by 2007 the forward price has converged to other measures;
- for the period beyond March 2009 we have assumed a price of US$1.00/lb in real terms. This is consistent with:
  - the upper end of the range of broker forecasts of long term prices;
  - AME forecasts for the period from 2010 to 2015; and
  - the long term assumption used in publicly available independent expert reports issued around the Relevant Date.

The chart below shows this profile against the other forecasts set out above:

Chart 7. Copper Price Forecasts – Years ending 31 March



Source **Consultant Reports, Rothschild estimates**

Notes

1. Independent expert figures exclude Deloitte report, which was issued after the Relevant Date.

We believe that a figure close to the top of the range of external estimates is justified because, as described in Section 2.4, we are not looking to determine the value the "average" bidder would place on the business but the price the highest bidder would pay. This party is more likely to be above than below the market consensus.

These prices all reflect expectations of the market / LME price. The DCF projections also incorporate a 5c/lb premium, reflecting what KCM was achieving on its cathode sales.

3.4 Economic Assumptions

3.4.1 Inflation

The cash flow projections have been prepared in nominal US$. IMCL have provided all the cost assumptions in real US$ as at the Relevant Date. To generate nominal projections we have therefore needed to apply forecasts of US inflation to the real projections. The table below shows consensus forecasts of US inflation at the Relevant Date:

Table 12. Consensus US Inflation Forecasts

	2005	2006	2007	2008	2009	LT
Consensus Forecast	3.3%	3.0%	2.4%	2.4%	2.4%	2.4%

Source **October 2005 Consensus Forecasts Global Outlook: 2005-2015 report**

Notes

1. Though the Consensus Forecasts report from which this data sourced is dated shortly after the Relevant Date, we believe it accurately reflects consensus forecasts of inflation at the Relevant Date as changes in US Treasury Bonds in the intervening period were not material and we are not aware of any other data or information which emerged in each period that would have had any significant effect on expectations.

3. Discounted Cash Flow Analysis

At the Relevant Date the inflation level implied by differentials between five and ten year Treasury Bills and index linked Treasury Bills were 2.38% and 2.33% respectively. This provides further confidence that the long term consensus forecast of 2.4% was reasonable.

On this basis we have adopted the consensus forecasts of US inflation presented above, which have been applied consistently throughout our financial analysis. As the DCF model periods end on 31 March in each year we have converted the calendar year forecasts to forecasts that reflect this assumption. These are shown in the table below:

Table 13. Consensus US Inflation Forecasts

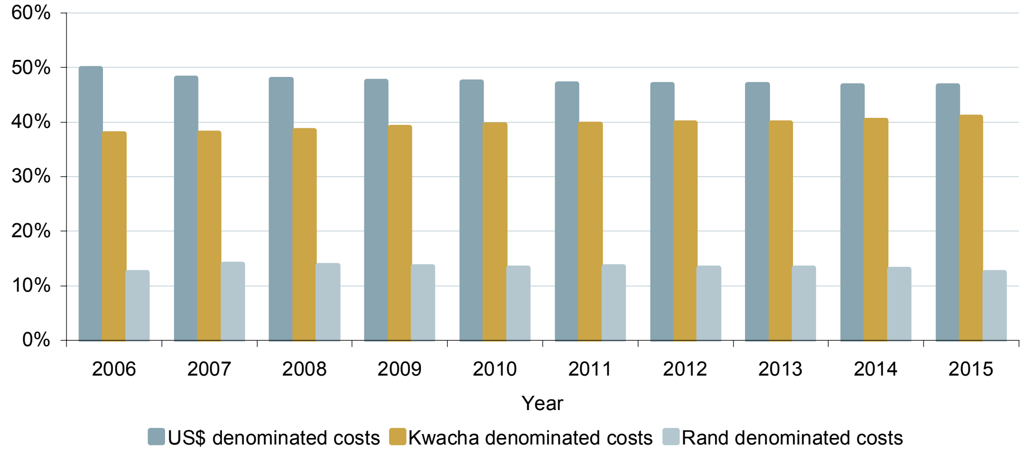
	Year ending 31 March				
	2006	**2007**	**2008**	**2009**	**LT**
Inflation	3.19%	2.85%	2.40%	2.40%	2.40%

Source **October 2005 Consensus Forecasts Global Outlook: 2005-2015 report, Rothschild estimates**

3.4.2 Exchange Rates

IMCL has identified that certain costs incurred by KCM are Kwacha and Rand denominated. The split of expenses by currency, as estimated by IMCL, is shown in the following chart

Chart 8. Cost Split by Currency 2006-2015



Source **IMCL Report**

The chart illustrates that Rand denominated costs are not a major portion of total costs, and we have therefore not modelled a sensitivity based on movements in the US$/Rand exchange rate. The impact of the real US$/Kwacha exchange rate will, however, be significant.

Our base assumption is purchasing power parity ("PPP"). Under this approach we have assumed that differences in the inflation rates are reflected in corresponding changes to the exchange rate. While this may be a reasonable (and not uncommon) long term assumption, in the short and medium term there can be significant variations from this which would affect value. We have sought to examine whether at the Relevant Date there was any evidence to suggest whether PPP would not be a reasonable assumption.

Long term forecasts of the Kwacha/US$ exchange rate are relatively limited. We have located two forecasts that were issued around the Relevant Date, which are set out below:

Table 14. Kwacha / US$ Exchange Rate Forecasts

	Oxford Economics			Global Insight		
Year	**Kwacha / US$**	**Zambian Inflation Forecast**	**Real App'n / (Dep'n)**	**Kwacha / US$**	**Zambian Inflation Forecast**	**Real App'n / (Dep'n)**
2005	4,651			4,730		
2006	4,769	12.0%	6.3%	5,643	14.0%	(7.5%)
2007	4,993	6.9%	6.1%	6,440	12.0%	(4.1%)
2008	5,208	6.4%	5.8%	7,245	10.5%	(4.1%)
2009	5,411	6.0%	5.6%	7,969	10.5%	(1.8%)
2010	5,602	5.7%	5.4%	8,766	10.0%	(2.2%)

Source **Oxford Economics August 2005 estimates, Global Insight August 2005 estimates**

Notes

1. Real appreciation or depreciation has been calculated by:

   a) determining the inflation differential between the US and Zambia;

   b) the implied Kwacha / US$ rate is calculated by deflating or inflating the Kwacha by the inflation differential to maintain parity in real terms; and

   c) the appreciation or depreciation is calculated as the difference between the exchange rates implied by relative movements in inflation rates post 2005 and the actual forecast exchange rates.

2. Global Insight forecast significantly higher Zambian inflation rates than did Oxford Economics, meaning that the difference in calculated appreciation or depreciation between the forecasts is not arithmetically proportionate to the difference in the underlying Kwacha forecasts.

We have also reviewed other forecasts, though none relate to extended periods of time. As with the longer term forecasts, these forecasts are conflicting. For example:

- The Economist Intelligence Unit forecast an appreciation of the Kwacha in real terms greater than that forecast by Oxford Economics; and
- Foreign Exchange Consensus Forecasts predicted a small depreciation in the Kwacha over its 12 and 24 month forecast periods.

The discrepancy between these forecasts shows the difficulty inherent in forming an informed view as to the prospects of the real Zambian Kwacha / US$ exchange rate in the long term. Notwithstanding this, in view of the burgeoning copper price and the level of activity in the Copper Belt at the time, we consider that the risks were weighted marginally towards a short term appreciation rather than depreciation of the Kwacha in real terms, and have analysed the effect of this in section 3.11 below.

3.5 Other Items Incorporated in the Financial Model

Rothschild has incorporated into the cash flow projections the effect of certain items that are not addressed directly in the IMCL Report. These matters are described below:

- **Movement in working capital**: we have adjusted the cash flows to incorporate movements in inventories, trade creditors and trade debtors. These movements have been estimated based on the historical relationship of these variables as compared to revenues;
- **ETB Cash Reserve**: we have estimated the funds required to be retained in an ETB Cash Reserve Account for the purposes of meeting certain environmental and terminal benefit obligations, in accordance with the provisions of the New Shareholders Agreement. These funds are assumed to be invested in interest bearing accounts and unavailable for distribution to shareholders and therefore the cash flows we have discounted are after transfer to the ETB Cash Reserve Account. However, where funds are available we assume that ETB Liabilities are first met from the ETB Cash Reserve Account;
- **Payment of Terminal Benefits**: we have reviewed information provided to us in relation to obligations outstanding at the Valuation Date to pay terminal benefits to employees, as well as historical information as to the rate of payment of these obligations. On this basis we have projected the rate at which these benefits will be paid and incorporated the results into the cash flow projections (with payments being made from the ETB Cash Reserve to the extent possible);
- **Copper price participation**: we have considered the terms of the Copper Price Participation Agreement pursuant to which certain payments are required to be made by KCM to ZCCM when the copper price is above a threshold level. Based on our forecasts of sales volumes, copper prices and funds available for distribution to shareholders, we have forecast the quantum and timing of payments to be made under this Agreement. These forecast payments have been included in the cash flow projections;
- **Cobalt price participation**: as we have assumed that no cobalt ore is processed we have assumed that no payments are made under the Cobalt Price Participation Agreement;
- **Insurance recovery**: on 8 April 2001 the north pit wall at the Nchanga open pit collapsed. KCM subsequently made a claim against its insurers in relation to this incident. At the Relevant Date the liability of the insurers to pay and the amount of any such payment were in dispute.

  We have reviewed documentation associated with this claim. In particular, we have been provided with a Memorandum of Meeting authored by Pinsent Masons and dated 4 August 2005. This memorandum notes that “nothing had detracted from PM’s overview that KCM have a good claim and could be awarded a sum in the region, subject to a revision of the quantum, of between US$40 – 50m”.

  We consider that even an aggressive buyer would have discounted the expected insurance recovery to take account of the time, expense and inherent uncertainty associated with any litigation. There is no objective methodology we can adopt to determine the appropriate level of discount that would have been applied by a purchaser, so we have relied on our judgement and experience to conclude that an aggressive buyer might have factored 50% of the value of the claim into its valuation of KCM. Accordingly, we have included in the cashflow projections an amount of US$22.5m, being 50% of the midpoint of the likely recovery range identified in the Pinsent Masons memorandum; and

- **Hedging**: we have reviewed the hedge book in place at the Relevant Date and the revenues included in the cash flow projections reflect the impact of these outstanding obligations on realised revenues.

3.6 Balance Sheet Adjustments

We have adjusted the DCF valuation to take account of balance sheet related items that were not captured in the cash flow projections. This necessitates that an adjustment be made in respect of net cash and investments. As we do not have accounts available as at the Relevant Date we have used values from the 31 July 2005 accounts. We have calculated net cash as follows:

Table 15. Net Cash

Item	Value (US$m)
Current investments ex ETB Cash Reserve Account	112.3
Bank overdraft	(1.6)
Short term borrowings	(7.1)
Long term borrowings	(28.3)
Net cash ex ETB Cash Reserve Account	75.3
Balance date adjustment	4.4
Net cash	79.7

Source **KCM 31 July 2005 management accounts**

Notes

1. Balance date adjustment represents an apportionment of forecast 2006 financial year cash flows on a daily basis to take account of the likely cash generation in the period from the balance date on which the net cash adjustment is based (31 July 2007) and the Relevant Date.
2. ETB Cash Reserve Account is excluded from the adjustment as it is assumed that money transferred into the ETB Cash Reserve Account represents an amount unavailable to investors. Surpluses in the ETB Cash Reserve Account, including amounts at the Relevant Date, are netted off against ETB liabilities as and when these occur.
3. Short and long term borrowings relate to the matched and un-matched facilities provided by ARH Limited (a subsidiary of Anglo American) and the Government of the Republic of Zambia and are secured over the proceeds of the Nchanga pit wall failure insurance claim. Assumed proceeds arising from settlement of the insurance claim as described in section 3.5 are including in the DCF projections.

No surplus assets available for sale have been brought to our attention, and so we have made no adjustment in this regard.

3.7 Debt Assumptions

As described in sections 3.1 and 3.9 our DCF valuation has been conducted on an ungeared basis. Nevertheless, we have incorporated into the financial model the potential for a buyer to reduce tax charges by raising debt for the KDMP development and thereby gaining tax shelter from ongoing interest payments. We believe a buyer of the company at the Relevant Date would have done this and have used the following high level assumptions for this purpose:

- drawdowns: equivalent to the capital costs of the KDMP expansion;

- repayment: starting in 2010 in equal annual instalments through to 2018;
- interest rate: 3% over LIBOR, representing long term interest rates plus a margin for KCM credit risk (and the associated Zambian country risk).

We have assumed that this represents the totality of the debt and the existing loans would be repaid prior to or as part of any KDMP financing.

We believe these assumptions represent the type of financing a buyer might have sought to put in place for KCM and consequently provide a reasonable basis for determining the tax benefits accruing to a new owner through the introduction of debt. We have checked the debt coverage ratios associated with this financing plan to confirm it was reasonably likely that this quantum of debt could in fact be raised. We note that, given our methodology, the value derived under the DCF analysis is not very sensitive to these assumptions.

3.8 Taxation Assumptions

Zambian taxation law is applicable to KCM, subject of modifications set out in the Amended and Restated Development Agreement. We have considered the terms of this agreement, the taxation legislation applicable at the Valuation Date and any prospective changes to the taxation legislation in contemplation at the Valuation Date. On this basis we have made the following key assumptions in relation to taxation:

- company tax is payable at the rate of 25% on assessable income;
- royalties are payable at the rate of 0.6% of realised revenue;
- all capital expenditure is deductible as to 100% in the year incurred;
- tax losses are able to be carried forward for either 10 or 16 years, depending upon the year in which they were incurred;
- amounts due under the Copper Price Participation Agreement are deductible as paid;
- transfers of funds to the ETB Reserve Account are not deductible for taxation purposes;
- payments of terminal benefits to employees are deductible as made;
- obligations in respect of restoration and rehabilitation and employee benefits are deductible as paid;
- the proceeds of the Nchanga insurance claim will not be subject to taxation; and
- there is no withholding tax payable on dividends

3.9 Discount Rate Assumptions

The overall methodology we have adopted for our valuation has been to discount the ungeared nominal after tax cash flows derived from our financial model of KCM. To reflect the potential benefit that would accrue to an owner in the form of reduced tax charges, we have assumed that the costs of the KDMP expansion would be funded by debt (as described in section 3.7 above). Our tax calculations take account of the tax shelter arising from the associated interest charges. We prefer this approach to using the weighted average cost of capital formula (which incorporates the tax benefits of gearing into the discount rate) as it allows us to reflect in our analysis the appropriate debt capacity of KCM over its life and the effect on its tax charges.

3. Discounted Cash Flow Analysis

Consistent with this methodology, the discount rate we have applied is an ungeared discount rate derived from the capital asset pricing model.

The formula for deriving the cost of capital under the CAPM is as follows:

R=Rf + beta x (market risk premium)

Where:

R:	Cost of capital
Rf:	Risk free rate
Beta:	A measure of the project's "systematic" or non-diversifiable risk
Market risk premium:	An estimate of the additional return over that on risk free investments required to invest in equity securities as a class

Each input to the formula is discussed below:

3.9.1 Risk free rate

A risk free rate of 4.2% has been selected. This represents the approximate yield of 10 year US Treasury bills at the Relevant Date and is the most widely accepted international benchmark for a risk-free rate of return.

3.9.2 Market Risk Premium

A market risk premium of 5.5% has been selected. The market risk premium under the CAPM is notionally a forward looking measure but is usually estimated based on market studies of historic market returns. The figure determined is heavily dependent on the period evaluated and precise methodology used. Accordingly there are significant variations in the figures derived and used. We believe that 5.5% represents a reasonable consensus figure.

3.9.3 Beta

The beta co-efficient is a measure of expected volatility of an asset or company relative to the market as a whole. Essentially, the beta co-efficient attempts to measure the systematic risk of an asset (i.e. how the returns for the project vary from the market as a whole). It does not attempt to measure the total risk of the project. The appropriate beta co-efficient in this case is the one which captures the systematic risk of KCM. However, this is not directly observable in the public market and we have not considered ZCI as a proxy given its small capitalisation. We have therefore had regard to the observed betas for a range of comparable listed mining companies in order to develop a proxy for the KCM beta. In particular, we have reviewed betas at the Relevant Date for publicly listed copper companies. These betas have been measured against each company's home stock exchange and the Morgan Stanley Capital International ("MSCI") All Country World Index (as a proxy for the global stock market). We have adjusted the comparable company beta co-efficients for the estimated impact of leverage to derive an estimate for an "ungeared beta". The table below sets out these betas:

Table 16. Geared and Ungeared Betas - Comparable Companies

		Ungeared beta vs MSCI			Ungeared beta vs Local Index		
	Index	**1 year**	**2 year**	**5 year**	**1 year**	**2 year**	**5 year**
Antofagasta	FTSE 100	1.08	1.21	0.73	1.03	1.21	0.61
Inmet Mining	TSX 60	1.11	1.48	0.73	0.90	1.10	0.60
Southern Copper	S&P 500	1.53	1.83	0.84	1.06	1.50	0.72
Phelps Dodge	S&P 500	1.78	1.84	1.30	1.40	1.67	1.13
Grupo Mexico	Mexico Bolsa Index	0.97	1.05	0.57	0.71	0.84	0.60
Freeport	S&P 500	1.25	1.32	0.71	0.91	1.12	0.62
First Quantum	TSX 60	0.73	1.46	0.65	0.85	1.37	0.66
Average		**1.21**	**1.45**	**0.79**	**0.98**	**1.26**	**0.70**

Source **Bloomberg, Rothschild estimates**

This empirical evidence generates a range of betas depending on the index and time period used, but they average approximately 1.1 and we have used this as the basis of our analysis.

3.9.4 Country Risk

We believe that any buyer valuing KCM would apply a premium to the discount rate to reflect its perceptions of the level of country specific risk.

A common method of quantifying country risk is through observing the spread of sovereign US$ denominated bond yields against US treasury notes of corresponding maturity. Essentially this represents the market's estimate of the additional return demanded for the incremental risk of a default by the relevant sovereign versus that of the US. While this does not directly correspond to the incremental risk of investing in a project in that country versus in a "first world" location, it provides a proxy.

Zambia does not issue any sovereign US$ denominated bonds and is not rated by any credit rating agency. A model suggested by Ratha, De and Mohapatra (2007) and published by the World Bank attempts to predict sovereign ratings for developing countries that do not have risk ratings from agencies such as Fitch, Moody's and S&P. The rating is a linear function of GNI per capita, GDP Growth, Debt/Exports, Reserves/(Imports + Short Term debt), Growth Volatility, Inflation and a value measuring the Rule of Law. All the explanatory variables in the model are based on 2005 data, and so it can be assumed to reflect conditions around the Relevant Date.

This model suggests a CCC+ credit rating for Zambia. However, if we compare the model output for African nations and their actual credit ratings, the model appears to have a slight downward bias in assigning ratings. There is therefore reason to believe Zambia, at the Relevant Date, might have been rated in one of the 'B' categories.

The table below shows the rating nine newly-rated African countries received in the period from 2003-2006:

3. Discounted Cash Flow Analysis

Table 17. Ratings - African Nations 2003 – 2006

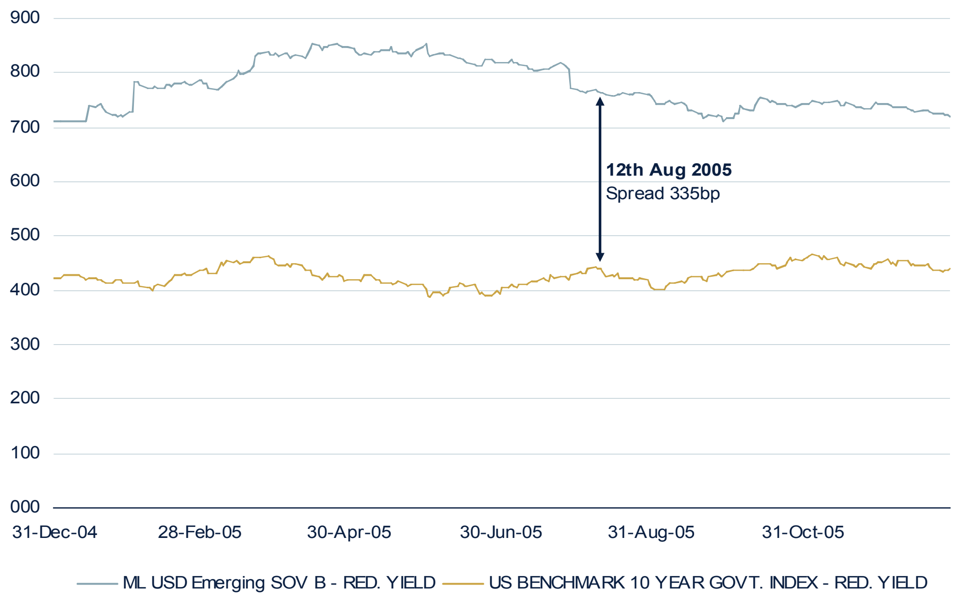
Country	Rating
Benin	B
Burkina-Faso	B
Cameroon	B
Ghana	B+
Kenya	B+
Mali	B
Mozambique	B
Nigeria	BB-
Seychelles	B

Source **Bloomberg**

Our judgment is that Zambia was at the Relevant Date comparable with the lower rated countries, again implying a “B” rating.

The chart below shows the Merrill Lynch Emerging Sovereign B Index over the benchmark yield on US treasuries (10 year). The spread between the two as at the Relevant Date stood at 335bps:

Chart 9. Merrill Lynch Emerging Sovereign B Index Spread



Source **Datastream**

A second mechanism to determine the level of appropriate country risk premium to apply is to consider the costs of obtaining political risk insurance ("PRI") coverage. We believe at the Relevant Date providers would have quoted rates in the range of 125 to 150bps for this coverage.

These two approaches generate substantially different indications for the appropriate level of country risk premium, viz:

- 335bps using a sovereign bond approach; and
- 125 to 150bps using the cost of PRI.

We have incorporated 2% into our discount rate calculation as:

- we believe that the sovereign bond approach intrinsically overstates the premium as it reflects specific credit risk on the host government. It is quite possible for an export oriented mining project not to be affected by a host government default;
- while PRI can protect an investor against certain risks (eg political violence, convertibility, expropriation etc), this protection is never absolute and there will always be some uncovered country related risks. We therefore believe the premium does not reflect a full country risk premium; and
- 2% reflects the level which in our experience buyers have used in broadly similar situations in countries with similar risks.

3.9.5 Calculated Cost of Capital

Based on the assumptions outlined above, our calculation of the appropriate cost of capital, including a country risk premium, is set out below:

3. Discounted Cash Flow Analysis

Table 18. KCM Cost of Capital

Item	Value
Risk free rate	4.20%
Beta	1.1
Market risk premium	5.50%
Country risk premium	2.00%
Cost of capital (nominal)	12.25%

Source **Rothschild estimates**

As discussed above, each of the inputs into this calculation has been estimated based on various empirical data and judgments. Accordingly, each input and the resulting discount rate is subject to variation. Therefore rather than using this single discount rate we have considered a range of 10.25% to 14.25%.

As a cross-check we have looked at the discount rates used by analysts when valuing copper companies with assets in Zambia and the Copper Belt. These are summarised in the table below:

3. Discounted Cash Flow Analysis

Table 19. Analyst Discount Rates - Comparable Companies

Company and Analyst	Date	Discount rate
First Quantum		
Orion Securities	21/02/2005	10.0%
First Associates	22/02/2005	8.0%
Salman Partners	28/03/2005	10.0%
Haywood Securities	31/03/2005	12.0%
RBC Capital Markets	20/06/2005	8.0%
Canaccord Capital	10/08/2005	10.0%
Average		9.7%
Equinox Resources		
Paradigm Capital	25/10/2005	12.0%
Dundee Securities	09/01/2006	10.0%
Average		11.0%
KCM		
Morgan Stanley	04/08/2005	12.0%
Overall average		**10.2%**

Source **Analyst Reports**

Notes

1. Haywood Securities, Cannacord, Orion and First Associates expressly disclose that the above discount rates relate to First Quantum's Zambian operations. RBC and Salman are not clear, but appear to apply the same rate to all assets.
2. Paradigm and Dundee disclose that discount rates quoted relate to the Lumwana project in Zambia.
3. Morgan Stanley's KCM discount rate is disclosed as part of its valuation of Vedanta Resources.

First Associates discloses that its discount rate is expressed in real terms but none of the other brokers are explicit in this regard. In our experience when valuing mines most brokers calculate long term cash flows on a real basis and would therefore apply (and present) a real discount rate. If this is the case for all these brokers then the average real rate used is 10.2%. This is 0.6% higher than the middle of the range we have calculated (as 12.25% in nominal terms converts to 9.6% in real terms based on our inflation rate assumptions).

It may be that some of the brokers, particularly those using higher rates, are actually presenting nominal rates and if so this would bring down the effective average of the discount rates quoted as these would need to be adjusted down for inflation.

We also note that brokers frequently use the Weighted Average Cost of Capital formula to determine discount rates. The WACC formula incorporates the tax benefits of gearing into the discount rate rather than into the cash flows (as we have done) and therefore generates a rate that is not directly comparable.

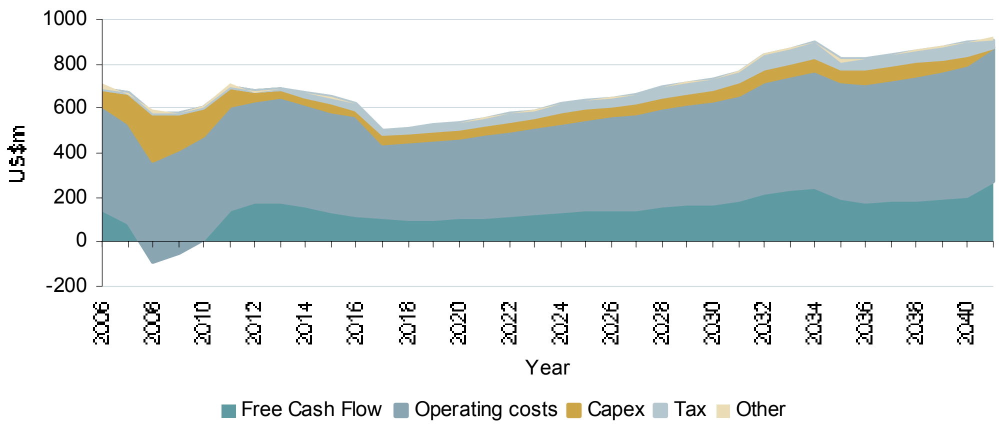
3. Discounted Cash Flow Analysis

In summary, the data above suggests the discount rate range we are adopting is broadly consistent with what brokers were assuming at the time but any comparison needs to be treated with caution.

3.10 Cash Flow Projections and Net Present Values

Based on the technical assumptions set out in the IMCL Report and our assessment of the economic parameters likely to have been adopted by a potential purchaser of KCM, we have developed financial projections that have been incorporated in the DCF model used to generate a set of net present value ("NPVs") of the business. The major components of the cash flow forecasts are set out in the chart below:

Chart 10. IMCL Reference Case Free Cash Flow Build Up



Source **Rothschild estimates, IMCL Report**

Based on these cash flow forecasts and the balance sheet adjustment discussed in section 3.6, we have derived the following "IMCL Reference Case" NPV for 100% of KCM:

Table 20. IMCL Reference Case NPV Following Balance Sheet Adjustment

	NPV at 12.25% Discount Rate (Nominal) (US$m)
NPV of cash flows for Reference Case	793
Balance sheet adjustment	80
Calculated equity NPV (100%)	873

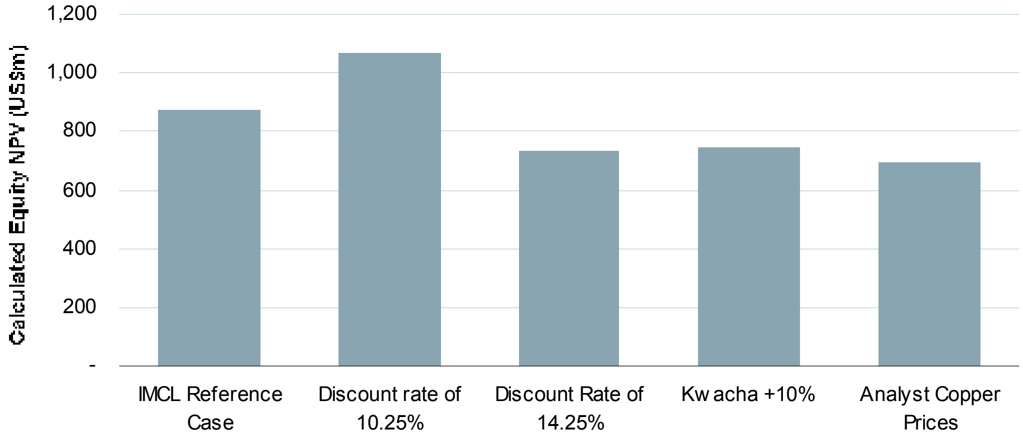
Source **Rothschild estimates**

The results below are all presented on an equity basis after the balance sheet adjustment.

3.11 Alternative Economic Assumptions

We have also calculated the KCM NPV on the basis of a number of different economic assumptions from those that we have applied in the IMCL Reference Case. The charts below sets out the impact on the calculated equity NPV of changing these :

Chart 11. Sensitivity Analysis - Financial Variables



Notes

1. Discount rate cases assume IMCL Reference Case cash flows are discounted at the specified rates.
2. Kwacha +10% case assumes that there is a real appreciation of 10% in the Kwacha / US$ exchange rate in all periods, and that Kwacha denominated input costs increase correspondingly in US$ terms.
3. Analyst copper prices case refers to the results of applying the average analyst copper price forecasts as set out in section 3.3.2 to the other IMCL Reference Case assumptions.
4. Debt drawdown +25% case increases the amount of debt drawn down by this amount.

3.12 Alternative Operational Cases

The IMCL Reference Case incorporates a set of assumptions that reflect what IMCL believes a buyer might assume for KCM. These assumptions are based on, inter alia:

- a significant turnaround at Nchanga with production picking up from 13,500 tonnes of cathode per month, which was achieved in the period from April to July 2005, to 17,700 tonnes per month in the financial year from April to March 2007; and
- KCM developing KDMP successfully in line with the feasibility study (albeit recognising the adjustment to the timetable IMCL has incorporated).

While a buyer may have envisaged some scope for operational performance superior to the IMCL Reference Case (and in Section 4 we consider certain discrete areas where there could be potential for further value) we believe that even an aggressive buyer would also have assessed downside scenarios given:

- the IMCL Reference Case (surrogate for the buyer's view) is more aggressive than the company's own view; and
- KCM's poor historical performance, and some of the risks this highlights for the future.

The cases in the graph below are intended to assess a number of specific areas of risk in the IMCL Reference Case:

- mine lives: we have reverted to the mine life assumption in the LOM;
- labour rates: KCM has had a history of difficult labour relationships and having to concede pay rises above inflation. Although IMCL has assumed settlement for the next four years at between 2% and 5%p.a in real terms, given this recent history a buyer may have considered larger increases, and we have run a case that assumes the increase is 10% in real terms for the next four years;
- production levels: production was significantly below budget at/prior to the Relevant Date. IMCL (and the LOM) essentially assume production will be back to budgeted levels by April 2006. Given the history of underperformance we have considered a case where production is 20% below IMCL's Reference Case assumption for all existing operations (ie excluding KDMP); and
- KDMP and smelter upgrade capital costs: IMCL has confirmed that the KDMP and smelter upgrade capital costs appear reasonable based on costs prevailing on the Relevant Date. Nonetheless with any major capital project there is greater scope for overruns than cost savings and we have therefore considered the effect of a 20% overrun.

Chart 12. Sensitivity Analysis – Operational Variables

Source **Rothschild estimates**

The extent to which any buyer would have reflected the results of these downsides into the amount it would be willing to pay for KCM would have depended upon its confidence in KCM's ability to manage future operations more effectively than it had in the past. However, we believe even an aggressive buyer would take some account of these cases and we have therefore also taken account of these when determining an overall value range from the DCF analysis and, on this basis have settled upon a range of US$650m to US$900m.

4. Analysis of Upside Opportunities

4.1 Introduction

The IMCL Reference Case assumptions reflect:

- the existing operations;
- the expansion of Konkola, given that the KDMP investment decision had been taken at the Relevant Date; and
- the upgrading of the Nkana smelter.

KCM has at its disposal certain other projects and opportunities. These have not been reflected in the IMCL Reference Case as the technical and economic challenges associated with them mean that there is no certainty as to if and when they might be exploited. We directed IMCL to undertake a technical assessment of these projects and opportunities and in the section below we have:

- provided a summary of its findings; and
- in light of this, given our assessment of the extent (if at all) to which a buyer of KCM might have attributed value to them, either explicitly or implicitly.

The more significant opportunities are considered below.

4.2 Chingola Refractory Ores

The Chingola Refractory Ores ("CROs") have long been identified as a source of potential value at KCM. Notwithstanding this, at the Relevant Date there was still no agreement as to the optimum technical solution to process them and the associated costs; so in its report IMCL has provided some illustrative parameters for a heap leach processing approach. Based on these, and the copper price assumptions set out in section 3.3, the CROs would generate an NPV of approximately US$90m.

However, we would doubt that any buyer would ascribe a "hard value" to the CROs of as much as this given that:

- it remains uncertain whether the technical approach advocated would work, and significant feasibility and pilot testing work would be required before this could be confirmed; and
- the economics are highly sensitive to the volume of acid actually required, the price at which it would be obtained and the associated impact on operating costs.

Nevertheless, we believe that a buyer would likely see some real value in the CROs and in this regard we note that we are aware that, at the time of the privatisation of ZCCM, (modest) cash offers were received for these stockpiles.

4.3 Cobalt Processing

Historically KCM has mined and processed certain cobalt rich ore. While this activity was not ongoing at the Relevant Date, IMCL were asked to consider the potential for realising incremental value by recommencing these operations. While IMCL has not ruled out the possibility, it has indicated that:

- at the Relevant Date the cobalt concentrator was starting to process ore from Fitwaola and would be fully utilised by this material until 2009-2010; and
- the quantities of ore were limited (1.1mt) and the grades low.

We also note that at the Relevant Date, and in marked contrast to copper, the cobalt price had fallen to around US$12/lb. Taking all these factors into account we doubt if even an aggressive buyer would have focused significantly on the cobalt potential at KCM or would have ascribed any material value to it.

4.4 Third Party Smelting and Refining

Toll treatment of concentrate by smelters is common throughout the world, but had not traditionally been undertaken in the Zambian Copper Belt as mines tended to be developed with their own associated processing capacity. At the Relevant Date this was changing, and it appeared likely that toll treatment would become more commonplace.

IMCL states that the existing smelter at Nkana was uncompetitive in this market due to its low recoveries (modern smelters typically achieve 97% recoveries but the Nkana smelter only averaged 92% recovery). However, IMCL's assumption is that the smelter would be the subject of a significant upgrade pushing the recovery up to around 95%. Although immediately post the upgrade Nkana would have limited spare capacity, post closure of Nchanga in 2016 it would have the ability to take approximately 30,000 tonnes per annum and it would be commercially reasonable for KCM to seek to toll process third party concentrate.

However, at the Relevant Date it would have been difficult for a prospective buyer to establish with any degree of certainty the viability of toll processing and the benefits that might accrue more than ten years hence:

- Mopani had already committed to the expansion and upgrading of Mufulira and CNNC was also considering a new smelter. There was therefore the prospect of significant competition for concentrates in the Copper Belt and, even post the upgrade, Nkana's cost structure would be high and it would be unlikely to attract material until the other smelters were at capacity; and
- the level of supply was unclear given the uncertain remaining lives of many mines, the absence of final decisions to bring new mines on stream and the uncertainty at the time regarding whether projects in the DRC would proceed and, if so, whether they would produce concentrates or would instead adopt a hydrometallurgical approach.

The availability of material for Nkana was therefore uncertain.

In view of the above, although a buyer might conceivably have identified this as a future source of upside, in our judgment it is unlikely to have resulted in it being willing to offer materially more for KCM.

4.5 New Smelter

Although KCM was clearly considering an upgrade to Nkana, there is no evidence that, prior to the Relevant Date, the Company was considering a completely new smelter (albeit this alternative approach was decided upon shortly thereafter). We nevertheless believe that a buyer of KCM at the Relevant Date might have factored this alternative into its evaluation given:

- the economics of the upgrade are adversely affected by the limited scope for cutting costs because the smelter would still rely on many labour intensive processes and outdated pieces of equipment needing significant ongoing maintenance; and
- the continued costs of transporting the concentrates to Kitwe.

In its report IMCL has estimated the capital costs of a brand new smelter and determined a net present value benefit versus the upgrade of approximately US$50m at a 10% real discount rate. In the context of a (hypothetical) sale of KCM at the Relevant Date, we are sure any buyer would have spent considerable time and effort thinking through the smelter options, given that the status quo was operationally unsatisfactory and KCM's own thinking had still not fully evolved. With the passage of time and subsequent developments it is difficult for us to judge what conclusion buyers might have reached and hence to what extent they might have identified and reflected all or part of the benefit of a new smelter (or indeed potentially a more attractive upgrading option) into the offer. We conclude, however, that the approach in the IMCL Reference Case is probably conservative and that a buyer may have factored into its analysis smelting options that increased the value.

4.6 Development of Konkola North and Mwambashi B

Konkola North was sold separately at the time of the privatisation of ZCCM and at the Relevant Date was owned by Teal Exploration and Mining. This company was floated on the Toronto Stock Exchange shortly afterwards.

Konkola North contains the Northern extension of the Konkola ore body. Prior to 1959 this deposit was exploited and there is still a shaft (No.2 Shaft) in existence. However, recommencement of production will require extensive development. In its report, IMCL has indicated that it may be cost efficient to develop this asset using a portion of KCM's existing Konkola infrastructure and, specifically, to use the No.3 Shaft once this becomes surplus to requirements following KDMPs development. If this approach were adopted then KCM could extract some of the economic value through:

- some kind of arrangement involving payment/royalty, NPI or access charge as consideration for the use of its assets; or
- a full or partial (joint venture) acquisition of the deposit which would allow it to extract some of the synergies.

However, we do not believe that even an aggressive buyer of KCM would have been likely to have placed any material value on this possibility at the Relevant Date because:

- at the time, any development of Konkola North remained uncertain;
- based upon the Listing Particulars of Teal (which were published shortly after the Relevant Date) there is no evidence to suggest that Teal was considering a development that would rely in any material way on KCM's infrastructure;
- IMCL's work has indicated that the development schedule for Konkola means that the shaft would only become available post 2017. We therefore suspect that any NPV benefit to Teal from its use would be more than offset by the NPV loss of the delay in Konkola North's development (albeit it could be used in a subsequent phase); and, more generally,

- arrangements of this type, while often considered in the mining industry, are usually difficult to agree and it is quite common, even when considerable demonstrable synergies are available, for the value not to be realised.

Separately, Teal own the majority of the small Mwambashi B deposit. IMCL believes exploitation of this might be more logical if the ore was processed through the Nchanga Tailings Leach Plant. In its Listing Particulars Teal specifically identified the availability of nearby processing facilities as a means of reducing the capital expenditure of a development. We are not aware that at the Relevant Date any significant discussions had taken place regarding this approach and, furthermore, Teal had yet to conduct a Feasibility Study. Given these considerations and the project's relatively small scale we doubt a buyer would have attributed material value to the possibility of extracting value through third party processing of Mwambishi B material.

4.7 Option Analysis

Based on the price and cost forecasts at the Relevant Date the operations at Nchanga are high cost. This raises the possibility that there may be additional option value inherent in the business.

If copper prices are as forecast, the Nchanga mines will stay open to the end of their projected life (2016), as they remain cash positive. However, if copper prices are so low that the present value of remaining open is less than the present value of closing the operations (including incremental costs incurred in bringing forward the closure), KCM would presumably exercise the option to close them early.

This creates a skew to average value, simplistically:

- if the long term copper price is 30c higher (i.e.US $1.30/lb) than the US$1.00/lb Reference Case assumption KCM would benefit fully from the incremental value (i.e. 30c multiplied by the production volumes); but
- if the long term copper price is 30c lower (i.e. US$0.70/lb) the mine will shut early and it will not incur the full impact of the fall in price.

There are a number of different ways of modelling this effect. Simplistically, it equates to KCM having a put option over the remaining reserves of copper at Nchanga at an exercise price equal to the remaining life of mine cash costs (i.e. if the price fell below the cash cost, by closing the mine KCM can capture the value between its (higher) cash costs and the outturn copper price).

For the purposes of our analysis we have assumed:

- for each year Nchanga remains in production a put option series related to the copper price is created;
- the number of puts in a yearly series is equivalent to the annual copper production from Nchanga in that year;
- the term to expiry is equivalent to the time from the Relevant Date to the year in which the copper production associated with the put series occurs; and
- the exercise price is equivalent to the direct operating costs attributable to Nchanga in the year of production.

4. Analysis of Upside Opportunities

We have valued this series of options using a Black & Scholes option valuation model with the following parameters:

- risk free rate of 4.2%, representing the yield on 10 year US treasuries as at the Relevant Date; and
- volatility of 26%, calculated as the standard deviation of the log returns of the LME Spot Copper price series over 10 years (1995-2005).

Based on these assumptions the value of the option series is US$35m. The resulting valuation is, however, extremely sensitive to the volatility input, as increasing this input by 100bp leads to an increase in value of approximately US$5m.

The methodology used to calculate this value does not reflect the practical difficulties associated with actual exercise of the option (eg labour issues associated with shutting Nchanga early and the potential for adverse knock on effects at KDMP, the time required to implement closure etc). Accordingly, we do not ascribe a hard incremental value of US$35m to the value we have determined for KCM pre this optionality (and doubt that buyers would have done so).

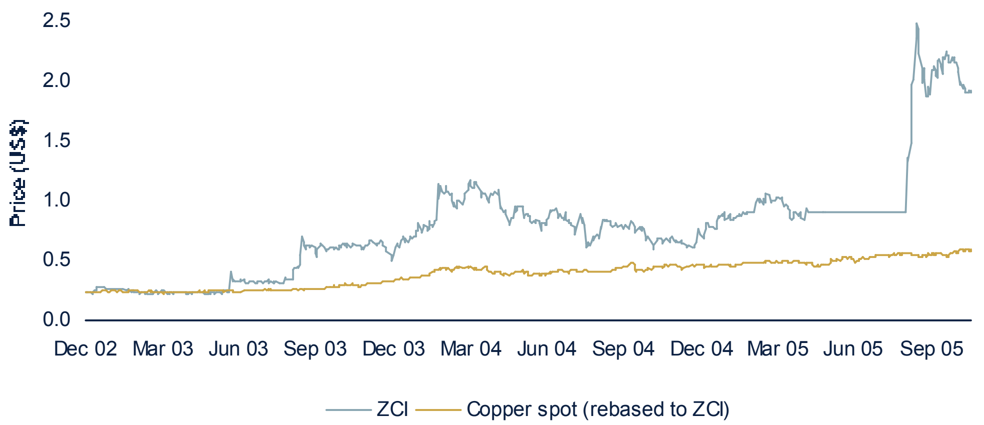
Nevertheless, given its cost structure and short life, Nchanga does have significant intrinsic option value and we have taken account of this potential when assessing overall value.

5. Other Valuation Methodologies

5.1 ZCI Share Price

ZCI's only non-financial asset is its stake in KCM. Accordingly, its share price should provide a "market view" of the value of its ownership in KCM. The graph below shows the ZCI share price (in US$) for the period prior to and around the Relevant Date, together with the spot copper price:

Chart 13. Copper Price and ZCI Share Price



Source **Bloomberg**

Notes

1. Prices are shown in US$ based on the trading price of ZCI on the Paris Bourse in Euros, converted to US$ at the daily prevailing exchange rate.

At the Relevant Date (and for three months beforehand) trading in ZCI shares was suspended as a result of issues associated with the production of accounts. The last share price before the Relevant Date does not reflect the 13.8% rise in the copper price in the intervening period or the announcement of the decision to proceed with KDMP, both of which would have a definite positive bearing on value. The share price on 1 September 2005, after cessation of the suspension, is significantly higher and this presumably reflects these developments. It should also reflect the announcement relating to the potential exercise of Vedanta's option.

After 1 September 2005 the share price increased markedly and averaged around US$1.96 during the month. We are not aware of any new material information that arose in this period, and it could be argued that these subsequent increases were driven by the market fully absorbing the same developments that triggered the initial increase when trading resumed.

The table below calculates the implied value of the interest based on the ZCI share price immediately before and after suspension and based on the average price in September 2005:

5. Other Valuation Methodologies

Table 21. KCM Valuation implied by ZCI Valuation

Item	Unit	Pre-Suspension	Post Suspension – 1 September 2005	Post Suspension – Average September 2005
Share price	US$	0.8987	1.3578	1.9616
Shares in issue	M	126.2	126.2	126.2
Market capitalisation	US$m	113.4	171.3	247.5
Balance sheet adjustment	US$m	(23.2)	(23.2)	(23.2)
Value of ZCI's interest in KCM	US$m	90.2	148.1	224.3
ZCI ownership of KCM	%	28.42%	28.42%	28.42%
Value of KCM equity (100%)	US$m	317.3	521.1	789.3

Source **Bloomberg, Company Accounts**
Notes
1. The balance sheet adjustment has been calculated by reference to the ZCI 30 June 2005 interim accounts, which showed net assets, excluding the value of ZCI's investment in KCM, of US$23.24m. Given ZCI's non-trading status we do not believe that the adjustment required based on ZCI's balance sheet at the Relevant Date would be materially different.

The implied value is significantly different depending upon which share price is used and the absence of a price at the Relevant Date is therefore an issue when considering this valuation approach. We dismiss the figure calculated from the pre-suspension share price as a meaningful marker as the subsequent developments (in particular the decision to proceed with KDMP) have such a significant effect on value. We have, however, taken account of the two post suspension metrics albeit subject to the following significant reservations:

- at the time there was limited data in the public domain either provided by ZCI itself or Vedanta (as illustrated by the range of values ascribed to KCM as set out in section 5.5) against which the market/ZCI investors could assess value;
- ZCI is a relatively volatile small capitalisation stock with limited institutional holding and analyst coverage; and
- more generally, by looking at share prices after the Relevant Date we are having to make the assumption that these reflect where it would have traded at the time had it not been suspended. While this seems to be a reasonable assumption it is not capable of confirmation.

Our reservations about the limited relevance of ZCI's share price as a valuation benchmark are reinforced by the fact that ZCI's share price did not react when it announced that the outcome of the recent arbitration regarding this valuation was in favour of Vedanta, which had clear value implications for ZCI which it is hard to believe were already reflected fully in the pre-announcement share price.

5. Other Valuation Methodologies

5.2 Trading Multiples

We have examined the Trading Multiples of a peer group at the Relevant Date. In selecting this peer group we have focused on copper companies with ongoing production. The table below sets out what we consider to be the relevant multiples:

Table 22. Comparable Company Trading Multiples

		EV / EBITDA			P/E		
	EV	2005	2006	2007	2005	2006	2007
Antofagasta	5,449	4.0x	5.9x	8.4x	8.7x	13.2x	18.0x
Aur Resources	562	2.9x	3.9x	4.7x	5.7x	9.1x	10.4x
Southern Copper	6,721	3.3x	4.8x	6.7x	6.9x	10.2x	17.4x
Phelps Dodge	11,156	4.0x	5.0x	5.8x	7.4x	10.6x	11.9x
Inmet Mining	473	2.4x	2.3x	2.4x	6.0x	6.4x	6.1x
First Quantum	1,485	6.4x	4.9x	5.2x	10.7x	8.8x	8.6x
Mean		**3.8x**	**4.5x**	**5.5x**	**7.5x**	**9.7x**	**12.1x**
Median		**3.6x**	**4.9x**	**5.5x**	**7.1x**	**9.6x**	**11.2x**

Source **Company annual reports, broker forecasts published at or around the Relevant Date**

Notes

1. Data represents calendar years to 31 December in each case.

For producing copper companies, we believe EV/EBITDA and P/E multiples represent the most appropriate valuation benchmarks. The table below shows historical and forecast EBITDA and net profit figures for KCM:

Table 23. KCM Historical EBITDA and Net Profit

Item		2005 Actual	2006 Forecast	2007 Forecast
EBITDA	**US$m**	123.8	161.9	178.6
Net Profit after Tax	**US$m**	55.2	75.2	79.2

Source **KCM Annual Accounts for the year ending 31 March 2005, Rothschild projections based on IMCL Reference Case for subsequent years**

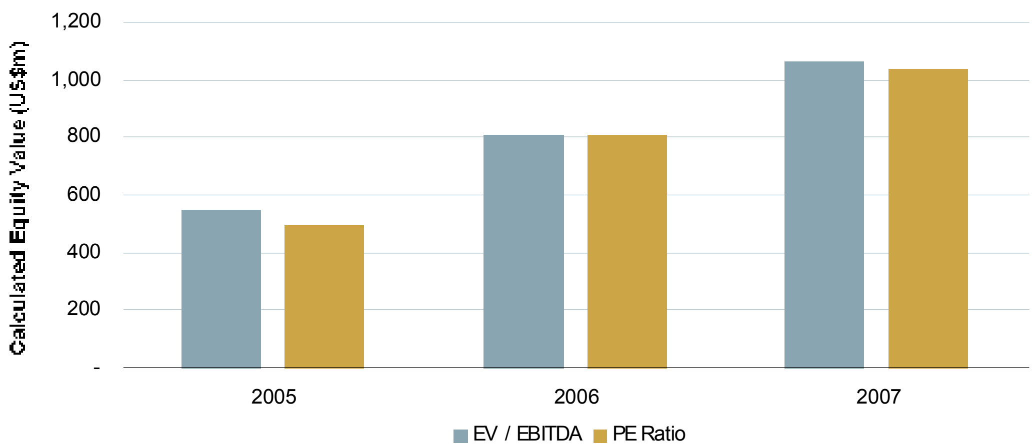
Notes

1. 2005 reported EBIT excludes exceptional item of US$9.9m relating to the write back of an expected insurance recovery.
2. The financial report to 31 March 2005 was for the preceding 15 months. We have determined EBITDA for the 12 month period by pro-rating costs on a straight line basis, and pro-rating revenue on a basis that takes account of the movement in actual LME copper prices throughout the year.
3. Forecast EBITDA and NPAT has been determined by applying analyst copper price forecasts as set out in section 3.3.2 to the IMCL Reference Case assumptions.

5. Other Valuation Methodologies

On the basis of these historical and forecast earnings figures we have derived values for KCM based on the trading multiples. These values are set out in the chart below:

Chart 14. Trading Multiples Valuation



Source **Rothschild Forecasts, KCM and comparable company historical results, broker forecasts**

Investors typically focus on forward multiples as the basis of valuation, suggesting an equity value of approximately US$800m to US$1,100m. However, we believe a buyer at the Relevant Date would have seen this as significantly overstating value given:

- KCM's production is either short lived (most obviously Nchanga) or reliant on a major capital investment program (Konkola);
- KCM had high operating costs and would have suffered a greater loss of earnings from the expected fall in copper prices (see section 3.3); and
- while the peer group has assets in a range of locations including emerging markets, we believe that KCM's exposure to country risk is higher and more concentrated than the peer group average.

More generally we note the wide range of multiples across the peer group, which is driven by the varying characteristics of the companies concerned. We have calculated the values above based on the average which does not reflect KCM's own specific characteristics and for this reason we, and, we believe, most buyers, would place only moderate weight on this valuation approach.

5.3 Vedanta Purchase of KCM

The terms of the Vedanta entry into KCM clearly provide a directly comparable value benchmark for the current valuation. The table below shows that this implies a value for KCM significantly below that generated by other valuation methodologies:

5. Other Valuation Methodologies

Table 24. KCM Valuation Implied by Vedanta Entry Price	
Item	**Value (US$m)**
Discounted value of cash payments to ZCI	17.8
Subscription for KCM equity	25.0
Total value paid	42.8
Portion of KCM acquired	51.0%
Implied value of 100% of KCM post transaction (i.e. inclusive of US$25m in cash)	84.0

Source **Company reports, Rothschild Estimates**

Notes

1. Deferred payments total US$23.2m and have been discounted at 12.25%

The actual implied value to the seller was however greater as:

- ZCI received all the consideration from Vedanta (rather than having to share this with ZCCM, the other shareholder in KCM);
- to compensate ZCCM, the Government of Zambia forgave US$16.8m of debt owed to it by ZCCM; and
- both parties benefited from the financing arrangements which effectively required Vedanta to carry all the burden of providing necessary shareholder support for KCM's financing requirements.

On this basis, the implied value of 100% of KCM post transaction was something over US$110m (with the excess over this figure depending on what value is attributed to the financing arrangement).

We understand that these terms were offered and agreed following a tender run by Standard Bank. Hence it could be argued that the entry terms paid by Vedanta represented a proper reflection of the fair market value. However, there are a number of reasons why we do not feel it properly reflects the value at the Relevant Date:

- **Timing**: the transaction was consummated on 5 November 2004, nine months before the Relevant Date. In the intervening period the spot copper price moved up from US$3,084/t to US$3,773/t. Furthermore, we understand that Vedanta was selected as preferred bidder on 16 May 2003 when the copper price was US$1,664/t. While the structure of the deal may have changed after this date, we understand that the basic economic terms were established at this time. The change in the copper price in between this date and the Relevant Date would, however, have completely changed the market value of the business, particularly in view of its high costs and resulting gearing to the copper price. Purely by way of illustration, First Quantum's share price went up more than five times between 16 May 2003 and 12 August 2005, and it is significantly less geared to the copper price than KCM; and
- **Nature of the transaction**: the process to find an investor in KCM was being run in the wake of Anglo American's withdrawal. The purpose was as much to secure the future of the operation as to maximise value. This is supported by a fairness and reasonableness review

of the proposed transaction undertaken by Rand Merchant Bank. Rather than purely assessing the price offered by Vedanta, they looked at a number of other benefits including:

– the ability of Vedanta to add value to the business of KCM in the future through active management and development of KCM;

– the potential value added to ZCI shareholders as a result of Vedanta being able to increase production levels and reduce operating costs at KCM; and

– the lower operating risk profile of KCM as a result of the shortfall funding commitment agreed to by Vedanta.

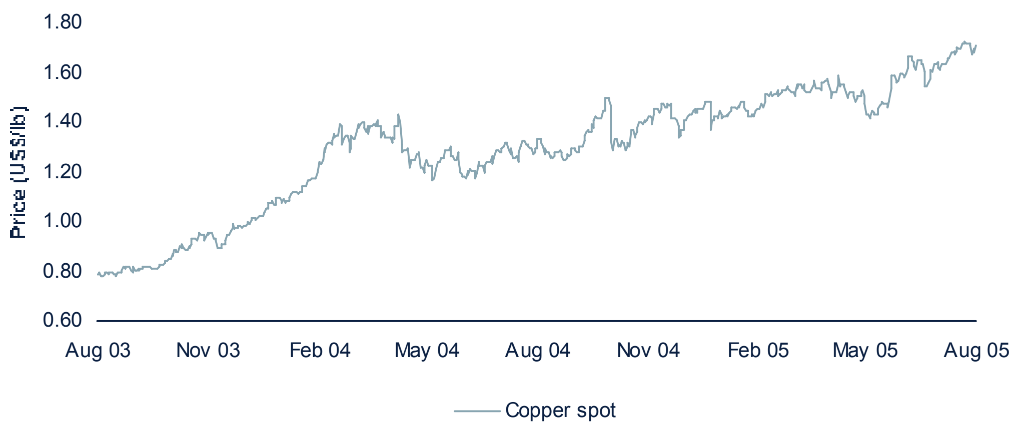
While we have no information that tends either to confirm or refute this, it may be that Vedanta offered less consideration than other bidders and was selected based on its perceived ability to add greater value in the future.

5.4 Other Acquisition Multiples

We have considered the value implied by prices buyers paid for the acquisition of copper assets in the immediate run up to the Relevant Date.

The graph below shows that the spot copper price rose sharply between August 2003 and March 2004, before initially declining and then rising steadily in remainder of the two years leading up to the Relevant Date:

Chart 15. Copper Price



Source **Bloomberg**

We believe that the sharp rise prior to March 2004 would have had a significant impact on the value placed on copper assets. We have therefore only considered private asset sales that occurred after this date. We have further restricted our analysis to the sale of producing assets and companies with a significant copper exposure. On this basis we have only identified two potentially comparable transactions. For each there is only limited financial information:

5. Other Valuation Methodologies

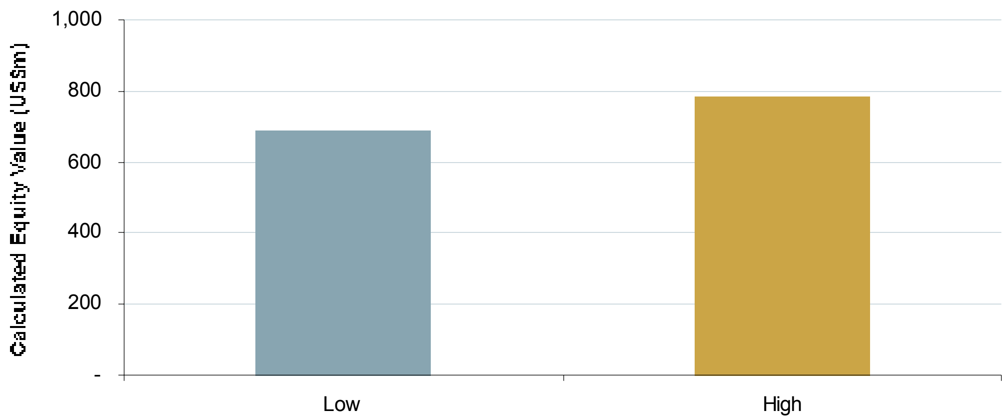
Table 25. Comparable Transaction Multiples

Announced	Acquirer Name	Target Name	EV (US$m)	EV/EBITDA Historical
Jun-05	Oxiana	Golden Grove	206.0	4.9x
Jul-04	Inmet Mining	Cayeli Bakir Isletmeleri	109.4	5.7x
Mean				**5.3x**

Source **Factset, Compset**

The chart below shows the implied value of KCM based on the historical EBITDA / EV ratio is in the range of US$680m to US$800m:

Chart 16. Transaction Multiples Valuation



Source **Historical company data, Rothschild Forecasts, Compset, Factset**

We place a low weighting on the results of this analysis for the following reasons:

- Golden Grove is primarily a zinc mine with copper, gold, silver and lead by-products, and is located in Australia; and
- Cayeli Bakir Isletmeleri is a significantly smaller operation, produces significant quantities of zinc and took place over a year before the Relevant Date.

5.5 Analyst Valuations

Prior to or around the Relevant Date a number of analysts conducted a sum of the parts valuation for Vedanta which included a valuation of KCM. We have reviewed these to determine the value analysts were ascribing to Vedanta's interest in KCM, and have derived an implied value for 100% of KCM from these figures:

5. Other Valuation Methodologies

Table 27. Analyst valuations of KCM

Broker	Valuation (US$m)	Disclosed Assumptions
Citigroup (28 April 2005)	437	
JP Morgan (2 June 2005)	567	WACC of 11.2%
JP Morgan (15 November 2005)	839	2008 unit costs US$0.86/lb WACC of 10.3%
Morgan Stanley (4 August 2005)	1,549	WACC of 12.0%, Unit costs for KDMP of US$0.65/lb
Average	**848**	

Source **Analyst reports**

Notes

1. JP Morgan reports both pre and post the Relevant Date have been included to illustrate the discrepancy in valuation between analysis issued approximately equivalent time periods before and after the Relevant Date.
2. JP Morgan stated that the WACC used to value KCM should be the same as for other Vedanta operations. In contrast Morgan Stanley considered that the KCM operations should be valued using a WACC that incorporated a premium to Vedanta's WACC of 9.7%.

While some variation in values is typical, in this instance the spread is unusually large. We ascribe this to the limited information on KCM (Vedanta had only just acquired it and so there was a limited reported track record under its ownership), the uncertainty as to future performance (ie to what extent Vedanta could turn it around) and its high costs, which make it more sensitive to variations in assumptions.

A buyer / seller would typically conduct a valuation based on comprehensive "inside" information and therefore place no weight on the value determined by an analyst that does not have this data. Nonetheless, analyst reports do reflect market views of value and are influential in setting expectations. Conceivably, a public buyer / seller would have considered the extent to which this may lead to a deal being poorly received by investors if there was a significant divergence between the transaction price and the market view on value.

A. IMCL Report

IMC Group Consulting Ltd

Technical Assessment Report

of

Konkola Copper Mines Plc

as at

12th August 2005.

Prepared for

N M Rothschild & Sons Ltd.

By

IMC Group Consulting Ltd

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1 INTRODUCTION

1.1 Purpose of Report

Vedanta Resources PLC (Vedanta) has exercised a right to establish a price at which it may exercise an option to purchase 28.4 percent of Konkola Copper Mines' ("KCM's") equity, currently held by Zambia Copper Investments Limited ("ZCI"), and the two parties have appointed N.M. Rothschild & Sons Limited (Rothschild) to act as independent investment bank to determine this price.

The purpose of the IMC Group Consulting Ltd ("IMC") work is to provide Rothschild with an assessment of the technical assumptions that a buyer might reasonably be expected to have applied when valuing KCM as at 12 August 2005. IMC has used KCM's own projections at or around this date as a starting point but has revised these to reflect what it believes to be appropriate for this purpose.

IMC was instructed by Rothschild to prepare this report in accordance with an agreed Terms of Reference ("TOR") contained in Annex B to this report. At ZCI's option, the report may be incorporated in a circular to its shareholders.

1.2 Capability and Independence

This report was prepared by IMC, the signatory. Details of the qualifications and experience of the consultants who carried out the work are in Annex A to this report.

IMC operates as an independent technical consultant providing resource evaluation, mining engineering and mine valuation services to clients. IMC has received, and will receive, professional fees for its preparation of this report. However, neither IMC nor any of its directors, staff or sub-consultants who contributed to this report has any interest in Vedanta, ZCI, KCM, the mining assets reviewed or Rothschild's determination of the option exercise price.

1.3 Sources of Information

During its site visits IMC was provided with information from the following sources:

- A KCM pre-prepared data room
- Historic Management Information System data requested from KCM HQ and individual facilities
- Maps and plans requested from KCM HQ and individual facilities
- Various other corporate information from KCM HQ

IMC has posted all information it received in electronic format from KCM, Vedanta or ZCI to a "virtual" data room, established by Rothschild and to which Vedanta and ZCI have had unrestricted access. It has also provided Rothschild with a brief description of all other information received from these parties in hard copy as and when received.

IMC has used information relating to the situation as at 12 August 2005 and endeavoured to establish what a buyer of the Company would have used and believed at the time during its evaluation of the then potential of KCM.

1.3.1 Reporting Procedures

KCM has a technically orientated reporting system comprising detailed physical and cost reporting. This system is maintained by the staff of each Independent Business Unit (IBU) and serves as a management tool for analyses of production and cost.

In contrast, the management information system (MIS) used at the corporate level serves as the official information source which summarises technical and cost information at the IBU level and does not allow for any meaningful analysis of performances and cost on an operational level.

Trying to compare budget and actual information from the corporate MIS with more detailed technical information from the IBU's showed discrepancies in both the budget and actual figures. Fortunately, the differences are less than 2% and can be regarded as negligible.

KCM management indicated that due to the change in ownership/management, as well as the change in the Fiscal Year end which took place beginning of 2005, some of historic cost data of the period 2003 to March 2005 may not have been properly allocated.

1.4 Methodology

IMC has analysed and interrogated KCM's own plans, forecasts and estimates for each of its operations and development projects and, if and where appropriate, amended and augmented these so as to produce a set of projections which are mutually consistent, in conformity with applicable regulation and agreements with governmental authorities and which, in the professional opinion of IMC, fairly reflect the most likely operational outcome for each asset if viewed as at 12th August 2005.

IMC has also analysed and reports here upon the factors to which each of its projections are most sensitive and provided a quantitative assessment of the risks on the downside and the opportunities to the upside of the "most likely" case.

IMC has addressed the following in relation to each of KCM's operations and development projects:

- Geology
- Reserves and Resources
- Mining Facilities
- Mine Plans
- Metallurgy and other process plant
- Infrastructure
- Environment
- Operating Costs
- Capital Costs
- Project Development Schedules

All the financial assumptions are stated in real US$ as of 12th August 2005.

1.4.1 Rationale for the "Most Likely" Technical Assumptions

1.4.1.1 Operational Plan

The starting point for IMC's operational plan is 1st August 2005. Thus the fiscal year 2005 has thus been split into 4 months (April-July 2005) actual and an 8 month (August 2005-March 2006) projected plan.

IMC has reviewed:

- Historical data for the last three years production of ore, waste, stockpiling and grades at each of KCM's operating mines and facilities;
- Historical data for the last three years processing operations from ore to finished products
- KCM conceptual and strategic planning framework from the Buyantanshi Business Plan
- KCM and feasibility study projections of production, development and processing at each of its operating facilities and development/expansion projects. In particular, the timing and magnitude of significant changes to historic norms

The Buyantanshi Business Plan, a KCM internally prepared plan involving personnel at all levels for "Going Forward" (the meaning of Buyantanshi) set against a background of a low copper price and potentially uneconomic operating costs, was submitted to the KCM board in January 2005, although it had formed part of the board discussions in 2004 prior to Vedanta's initial purchase, and sets out strategic objectives for the Company identifying mine planning, projects, prospects and exploration initiatives to be pursued in developing towards those objectives, which IMC considers, after checking and confirming with KCM, represented a conceptual framework for management's thinking for a significant period prior to August 2005 rather than a detailed planning document. Accordingly, IMC has considered that this document (as described further below) does not provide an appropriate staring point for the detailed technical assessment.

In the discussions on site with the KCM management it became clear that a Life of Mine (LOM) plan together with a yearly budget is the standard way KCM undertakes its business planning. In accordance with the budgeting schedule for a fiscal year ending March, the budget for 2005-06 was approved by the Board of Directors in January 2005 and a LOM plan should have been prepared between March and May 2005.

However, the Life of Mine plan which was made available to IMC as the valid business projection as of August 2005 was completed sometime in October 2005, (i.e. after 12. August 2005) and submitted to the Board in January 2006. Following enquiry of KCM and Vedanta IMC has been assured that, although this LOM plan was only fully documented in October 2005, it accurately reflected the new owner's strategic plans for the Company's operations and projects at 12th August 2005 and, furthermore, that nothing had been produced prior thereto that documented the new owner's plans at that date.

Note that after 2010 KCM will be dominated by the Konkola Deep Mine Project (KDMP), the planning for which is reflected in a feasibility study undertaken in 2001 and updated in May 2005. The October 2005 LOM plan is substantially consistent with this feasibility study (as updated). To this extent, therefore, the long term operational planning reflected in the October 2005 LOM plan is supported by a feasibility study which pre-dates 12th August 2005.

In the absence of any other relevant documents IMC has used this LOM plan as the starting point for this Technical Assessment but has, where appropriate, made modifications in accordance with the criteria described in section 1.4 above.

1.4.2 KCM Board Approvals Schedule

Table 1-1 below shows when the KCM board of directors considered and approved various documents and major projects. IMC has used this schedule to verify the status of various documents on or around 12th August 2005.

Table 1-1 KCM Board Approvals Schedule

KCM Board Meeting	**No 25 16th June 2004**	**No 27 23rd September 2004**	**No 29 14th January 2005**	**No 30 6th May 2005**	**No 31 21st July 2005**	**No 32 26th October 2005**	**No 33 16th January 2006**
Documents							
Buyantanshi Business Plan			Submitted				
Budget 2005/6			Approved				
Life of Mine Plan						Management submitted a projection including Capex, KDMP and Nkana expansion	Updated LOM Submitted
Major Capital Projects							
Nkana Smelter Acid Plant	US$12.4 M Approved	Relocated to Nchanga		US$25.4 M Approved			
Nchanga		Proceed		Additional			

Acid Plant		under original budget.		US$12 M Approved			
Chingola Refractory Ore				Proceed with R&D and develop Capex			
Konkola Ore Body Expansion				Conditional Approval	US$357.14 M KCM Approved GRZ Approval		
Nkana Smelter Expansion					Concept Note Submitted	US$125 M Approved	Additional US$20 M Approved

IMC has considered and given its views as to whether the KCM's projections (including those in the KDMP feasibility study) are deliverable and optimal. If it considers production levels are on balance more likely to exceed or fall short of those in the KCM plan IMC has revised these in its own Operational Plan. IMC has discussed the rationale for each adjustment. The underlying principle being that anything IMC has not changed would be what it considers that a successful buyer of the asset in August 2005 would have used. The objective has been to project what would have been viewed as "optimal" not just "reasonable or achievable".

The IMC Operational Plan for each IBU then forms the physical plan which is supported by operating and capital costs as evaluated below.

1.4.2.1 Operating Costs

In arriving at its projections of KCM's operating costs, IMC has reviewed:

- Historical data for operating costs at each of KCM's operating facilities in each of the last three years;
- KCM and feasibility study projections of operating costs at each of its operating facilities and development/expansion projects; and
- IMC's Operational Plan to the extent that this modifies KCM's own physical projections

The operating costs to apply to the IMC Operational Plan were then derived using IMC's technical and commercial judgement and the following procedures:

- Operating costs were split into:
  - manpower;
  - consumables, such as fuel, power, water and chemicals;
  - repair and maintenance; and
  - other costs
- The actual operating cost and production were recorded for two full years and the period April to July 2005;
- The individual cost items are split into fixed and variable as appropriate then projected forward on the basis that production is as set forth in the IMC Operational Plan
- The effects of any anticipated physical or technological changes are incorporated
- The effects of costs in US$, Kwacha and or SA Rand are considered in terms of differential exchange rates and inflation
- Any special factors relating to a particular cost are incorporated

1.4.2.2 Capital Costs

Capital expenditure is sub-divided into:

- Sustaining capital
- Project capital

IMC has, where appropriate, made adjustments to KCM's projections of sustaining capital based upon historical trends and an assessment of the physical requirements at each operation, particularly at the concentrator and smelting facilities.

KCM's estimates of project capital requirements have been assessed and where appropriate modified using IMC's historical knowledge of similar projects planned in 2005, backed up by proprietary data base costings.

1.4.2.3 Other Cash Expenses

Other expenses, which are directly related to the operation or closure of production units comprise:

- Closure and rehabilitation cost
- Severance payments for employees

Although KCM may make provisions prior to incurrence of some of these costs, they are shown in the IMC Operational Plan as incurred.

IMC has made necessary adjustments to KCM's estimates to:

- Ensure consistency with production forecasts;
- Ensure environmental compliance; and
- Establish a "most likely outcome".

1.5 Scope of Work / Materiality / Limitations and Exclusions

IMC reviewed the assets in accordance with the scope of work and exclusions and limitations and on the basis of the materiality criteria set out in Annex B to this report.

All opinions, findings and conclusions expressed in this report are those of IMC and its sub-consultants.

2 OVERVIEW

2.1 General

On 12th August 2005 KCM owned mining and mineral assets at Chingola, Chililabombwe and Kitwe in the Zambian Copperbelt, with a satellite operation north of Lusaka. The operations comprised underground and surface mines supplying principally sulphide copper ores to concentrators which in turn fed a smelter and refinery at Nkana, together with a leach plant at Nchanga treating tailings and limited amounts of copper oxide ore.

KCM administers these operations via five independent business units:

- Konkola
- Nchanga
- Nkana
- Nampundwe
- Corporate HQ

IMC has reviewed the mines and facilities within each independent business unit to support Rothschild in the preparation of a company valuation as at 12th August 2005 (the "Valuation Date").

2.2 Description of Assets

IMC reviewed the assets listed in Table 2-1 below, all of which were at the Valuation Date wholly owned by KCM.

Table 2-1 List of Assets

Asset	Status	Type	Product/Output	Date of Commencement of Operation
Mining				
Konkola	Operating	Underground mine	Copper	1956
Nchanga	Operating	Underground mine	Copper	1937
Chingola B	Closing	Underground mine	Copper	1992/3
Nchanga	Operating	Open Pit	Copper	1955
Chingola D and F	Operating	Open Pit	Copper	2003
Fitwaola	Operating	Open Pit	Copper	2005
Nampundwe	Operating	Underground mine	Pyrite	1910's re-opened 1970
Processing				
Konkola	Operating	Concentrator	Copper	1956
Nchanga East Mill	Operating	Mill	Copper	1930s
Nchanga West Mill	Operating	Concentrator	Copper	1930s
Nchanga Cobalt Mill*	Operating	Concentrator	Copper	1930s
Nchanga Tailings Leach	Operating	Leach Process	Copper	1930s
Nchanga	Operating	Refinery	Copper	1986
Nampundwe	Operating	Concentrator	Pyrite	1970
Nkana	Operating	Smelter	Copper	1930s
Nkana	Operating	Refinery	Copper	1930s
Projects				
Nchanga Acid Plant	Project	Acid Production	Sulphuric Acid	Planned 2006

Konkola Deep Mining Project	Project	Underground mine and Concentrator	Copper	Planned 2010
Prospect				
Chingola Refractory Ore	Prospect	Stockpile Processing	Copper	

Note *Milling Acid Soluble Cu Ore in August 2005.

2.3 Summary of Geology

2.3.1 The Zambian Copperbelt

The Zambian Copperbelt is a northwest trending zone 150 km long by 50 km wide comprising Late Proterozoic Katangan Supergroup sediments, underlain by basement rocks consisting of folded schist, quartzite and large granitic intrusions. Copper and associated cobalt mineralisation occurs within the Roan/Shaba Group sediments close to their contact with the underlying older basement rocks.

The Roan Group is subdivided into the Upper Roan Group and the Lower Roan Group (LRG), with primary economic ore hosted within the LRG. The LRG comprises siliclastic sediments, which range in grain size from conglomeratic arkose to argillites with minor interbedded carbonates. These beds unconformably overlie the basement complex rocks where the schists formed palaeo-topographic valleys while the quartzites and granites formed more resistant palaeo-hills and ridges. There is a well-established relationship between the basement palaeo-topography and the location of the Katangan sedimentary basins, the location and character of the mineral deposits and their subsequent deformation. Barren gaps with no mineralisation are sometimes encountered due to the development of dolomitic bioherms (or reefs) on palaeo-topographic highs.

Copper mineralisation commonly occurs as relatively uniform and continuous stratabound tabular deposits within specific lithologies of the LRG. They typically range from a few metres to 40 m in thickness and from 2%TCu to 4%TCu in grade. The most important mineralised horizon is the Ore Shale Formation where primary sulphides (bornite, chalcopyrite, pyrite, pyrrhotite and carrolite) are disseminated throughout the shale in grain sizes similar to the host rock. Secondary minerals (chalcocite, malachite and cuprite) occur as millimetre-scale lamellae or partings, with barren rock in between them. The sulphide minerals are sometimes altered to native copper, azurite and chrysocolla as a result of oxidation, particularly near the surface and adjacent to faults. There also exists marked sulphide mineral zonation both laterally and down dip in most of the Copperbelt deposits. This has been linked to depositional facies change.

Cobalt mineralisation is much more restricted than copper and, while it occupies the same stratigraphic horizons as the copper enriched zones, its strong geometric association with local-scale folding supports the concept of a structural control on its concentration. The main cobalt minerals are carrolite and cobaltiferous pyrite.

2.3.2 Reserves and Resources

KCM's reserve and resources as of August 2005 are summarised in the individual Independent Business Unit (IBU) sections of this report.

2.4 Mines and Processing Facilities

The operating mines and processing facilities are listed in Table 2-1 above and addressed in detail in the individual IBU sections below.

The Konkola operations are near Chililabombwe and consist of an underground copper mine, a copper concentrator and associated infrastructure. KDMP is located here, and this project, a major venture to ensure the future of KCM, is based on the substantial resources lying below the current Konkola operations.

At Chingola, there are the Nchanga open pit copper/cobalt mine, a world-class mine in its time but which is now approaching the end of its life, the Chingola open pits, the Nchanga and Chingola underground mines, a copper concentrator, an oxide leach plant and a number of satellite open pits including Fitwaola.

Kitwe is the major business and manufacturing town of the Copperbelt where the Nkana copper smelter and Nkana copper refinery are located.

The Nampundwe mine is an underground operation with a process plant producing a pyrite concentrate, rich in iron and sulphur. This concentrate is used in the smelters on the Copperbelt for energy balance.

2.5 Projects

Projects which had recently been commissioned or were in advanced planning as of August 2005 were:

- A sulphur burning acid plant associated with the Nchanga Tailings Leach Plant
- The Konkola Deep Mine Project

IMC consider it reasonable that a buyer of the assets in August 2005 would have also considered and potentially attributed value to other possible projects, particularly associated with the efficient processing the ore from KDMP. The following projects fall into this category and are discussed below:

- A second new 3 Mtpa concentrator at Konkola
- A new-build smelter

2.6 Upside Potential

IMC has considered various upside potential prospects, identified by KCM as at August or recognised by IMC, which a buyer of the assets would have known about and may have assessed in preparing its valuation. This potential included initiatives from short term efficiency investment in the existing operations to the construction of complete new mine and processing facilities.

In particular, IMC has considered the processing of a number of Refractory Ore stockpiles at Chingola to extract the contained copper. There was no accepted “standard or normal” process available in August 2005 or yet developed to extract copper from this type of refractory ore. IMC has considered this prospect in terms of its potential to be developed into an economic process operation and the likely approach a buyer would have taken in the preparation of a Company valuation in August 2005.

The KCM board also considered this resource as a potential economic asset as it approved a programme of research and development in January 2005 which is discussed below.

2.6.1 KCM Buyantanshi Business Plan

The Buyantanshi Business Plan sets out KCM’s strategic objectives and framework identifying mine planning, projects, prospects and exploration initiatives. The background and objectives were as follows:

- Business planning started in 2003;
- Long term Life of Mine extends current life of mining operations from 2012 to 2024;
- Target production 250,000 tonnes copper cathode:
  - 150,000tonnes per annum through Smelter (Pyrometallurgical route)
  - 100,000 tonnes per annum through TLP (Hydrometallurgical route)
- Unit costs of production of US60 c/lb or lower;
- Prudent use of capital; and
- An acceptable rate of return.

The plan considers various projects which are considered in this report:

- KDMP, a twenty year 6 Mtpa mine and processing operation
- Smelter expansion at Nkana to produce 150,000 tpa of finished cathode

- Acid production in house of 170,000 tpa from the optimised Nkana smelter and a further 170,000 tpa from a sulphur burning plant at Nchanga
- Chingola Refractory Ore processing an estimated 117 million tonnes @ 0.65% ASCu (already mined and stockpiled over a period of 40 years)
- Exploration and investigation initiatives:
  - Nchanga license area data review and additional drilling
  - Investigation of the Mimbula (Nchanga) and Fitwaola (Konkola) deposits
  - Nchanga Underground Upper Ore Body Resource (54 Mt @ 2.4% TCu)
  - Non-KCM resource potential (Mwambashi B and Konkola North), options reviewed with African Rainbow Minerals

IMC considers the Buyantanshi Business Plan to be a high level conceptual document which it has used as an initiatives "check list" by considering each of the opportunities described above.

2.6.2 Processing

The largest operational and capital cost in a base metal mining operation is usually associated with the processing of mineralised ore into finished products. Operational efficiency affects recovery and cost and IMC has identified a number of areas where improvement was possible during the course of its facility visits that would have existed and be recognised by an efficient operator buying the Company in August 2005. If in terms of cost and benefit, IMC considers that amelioration of any of these issues would be an effective way of the adding incremental value to the Company, IMC has addressed this potential in each business unit section below, including the effects in its projections.

2.6.3 Concentrates and Smelting Capacity

IMC has looked at the possibility of enhanced future profits from KCM's existing and or additional smelting capacity by considering their in-house requirements and the potential for toll smelting of externally supplied concentrates.

In 2005, there were two operating copper smelters on the copperbelt, Mufulira and Nkana. In addition to the established producers, concentrate suppliers and potential suppliers included Kansanshi, which was in the process of approving a series of projects designed to build up its production,, including 165,000t/year of sulphide concentrate which was expected to be produced for smelting from 2007 onwards, and Lumwana which was to commence production in 2008, but was hoping to arrange project finance and whose prospects were viewed sceptically by the market. The China Non-ferrous Metal Mining Company (CNMC) was also conducting a feasibility study into the construction of a smelter, but no investment decision had been reached. Mopani Copper Mines (MCM) had committed to the re-construction and expansion of the Mufulira smelter, from its 2004 capacity of approximately 420,000t/year concentrate to an interim 650,000t/year and later 850,000t/year. The reconstruction aimed to replace the worn-out electric smelting furnace with an Isasmelt furnace better suited to future requirements and the expansion was mainly intended to provide custom or toll smelting capacity for the new mines that were expected to come into production.

Table 2-2 below shows the overall supply and demand for smelter concentrates, based on committed developments on the copperbelt in mid 2005.

Table 2-2 Concentrate Production and Smelter Capacity Projections

Company	Mine	2005-06 Proj (kt)	2006-07 Proj (kt)	2007-08 Proj (kt)	2008-09 Proj (kt)	2009-10 Proj (kt)
Concentrate Production						
KCM	Nchanga	215	208	219	232	95
KCM	Konkola	154	203	237	363	485
Mopani	Mufilira	150	150	150	150	150
Mopani	Nkana	250	250	250	250	250
Metorex	Chilumba	24	24	24	24	24
Anvil	Dikulushi	40	40	40	40	40
NFC Africa	Chambishi	120	120	120	120	120
First Quantum	Kansanshi	100	145	165	165	165
J & W	Baluba	78	78	78	78	78
Equinox	Lumwana	0	0	0	0	0
Total		1131	1218	1283	1422	1407
Total for Smelter		1,053	1,140	1,205	1,344	1,328
Smelter Capacity						
Mufulira		420	650	850	850	850
Nkana		450	450	450	450	450
Total		870	1,100	1,300	1,300	1,300

Based on the 2005 development commitments, the planned concentrate production and smelter capacity were, in the medium term, quite well balanced. However, further mine expansions at Kansanshi and Chambishi were, foreseen, although not committed at that stage, and the Lumwana feasibility study was progressing against the backdrop of a rising copper price.

Increasing stability in the neighbouring DRC had led to the return of mining companies to the DRC. In the absence of serviceable smelting capacity in DRC, it was anticipated that any copper concentrates that did arise from new mining developments might further increase the supply to copperbelt smelters. However, the copper and cobalt deposits most likely to be exploited in the near future were in “oxide” minerals, and would be extracted by hydrometallurgical processes.

The industry structure had also changed the outlook for copper smelting. Historically, the copperbelt had been developed by a few major companies (Roan Selection Trust and Anglo American in Zambia and Union Minière in the Congo), which had each provided their own metallurgical plant to produce finished copper to minimise the export freight cost. Following the independence of the two countries, the mines were progressively taken into public ownership. Privatisation over the previous decade had led to a more diffuse ownership of the mines with smaller and larger players on both sides of the border. Over the seventy years since a new smelter was last built on the copperbelt, relative reductions in freight cost and increased environmental requirements had increased the minimum size for an economic smelter to about 150,000 tpa of copper and only the largest mines could justify the construction of their own smelter. Owners of small mines rather than paying for a smelter to smelt and refine their own copper concentrate looked to third party processing and the introduction of custom or toll smelting, commonplace in other parts of the world, became a realistic option for Zambia.

On balance, therefore, IMC would expect a knowledgeable investor in the copperbelt, in August 2005 to have therefore anticipated a medium to long term shortfall in smelting capacity and the opportunity for this to be met by toll smelting. The need to commit to further smelting capacity increases was quite urgent, partly because of the time that it would take to construct the new capacity, and also because smelting agreements were critically being sought by new projects (Kansanshi expansion, Lumwana etc.) in order for those projects to secure financing.

2.6.4 Mining

KCM mining operations in August 2005 were a combination of conventional surface mining and labour intensive semi-manual underground activities. Plans in August 2005 were for mines with a limited life to continue without change whilst KDMP, the long life operation, would introduce mechanisation from the outset. IMC considers this concentration on the future to be a realistic approach that a buyer would adopt.

A more radical approach to mining efficiency would be to dramatically increase infrastructure and production capacity and mine at a faster rate. The potential for such an approach was assessed at different times by ZCCM, Anglo American and KCM was well documented in August 2005. IMC believes that, in August 2005, a buyer would have considered that there was no other deposit within KCM’s control other than Konkola that could have economically supported such an approach. However, the Konkola deposit may have been viewed as offering potential over and above KDMP itself.

Konkola mine was originally planned to operate with three shafts working within the extended orebody. However, only Nos 1 and 3 shafts form the existing Konkola mine with a partially developed No 2 shaft, which included a vertical shaft, two ventilation shafts and three production haulage levels, accessing the Konkola North orebody, owned by a third party. No 2 shaft was sunk in the 1960s but allowed to flood after an inconsistent ore body was discovered. However, the mine’s potential could be and, indeed, was being reassessed against a background of current mechanised mining practices and a more bullish copper price forecast environment. This shaft could operate as a limited capacity mine on its own but has the potential to be joint ventured by its owner in conjunction with KCM’s No 3 shaft some time in the future to form a mine working the northern extension of the Konkola orebody. This possibility was recognised by the Buyantanshi Business Plan and has the potential to add to a buyer’s valuation.

Mwambashi B is a small deposit between Mindola North and Chambishi which was owned by a third party and had prospect status in August 2005. Like Konkola North, this deposit would probably have been expected by a buyer of KCM to stay in its current ownership but may have been viewed as an additional joint venture source of ore to feed the Nchanga process plants after the exhaustion of the KCM mines.

2.6.5 Exploration Potential

The Zambian Copperbelt has had active mines for many decades and the various private and public sector owners have conducted exploration programmes of varying levels of intensity to locate new deposits or extensions to existing ore bodies anywhere on the Lufilian arc. It is generally accepted that it would be unlikely that a major new deposit will be discovered. Any new resources not already known about are likely to be in the deepening or marginal lateral extension of known ore bodies at existing mines and therefore do not have the potential for major increases to a company’s future value.

At Nchanga, where the orebodies outcrop or are close enough to the surface to be worked by open pit methods, there are a number of small satellite pits which could be considered by a buyer to have economic value, although this would depend mainly on its copper price outlook.

All of these areas of upside potential are considered below within the appropriate business unit sections.

2.7 Management

In August 2005 KCM was establishing stand alone Business Units (IBU) all of which, as far as IMC could establish, were managed by longstanding and in the main internally promoted former ZCCM employees. Following the 51% acquisition of KCM by Vedanta, which became effective in December 2004, a senior top level team was installed in the headquarters facilities at Nchanga.

IMC observed that the limited Vedanta team was operating at a high level and changing the Management Information System to support this approach. Management of the IBUs were responsible for their individual operational results whilst the headquarters team were developing the overall business through strategic investment in major and efficiency improving projects.

2.8 Infrastructure

Generally the infrastructure associated with KCM's facilities was constructed or installed 20 to 30 years ago. It has been well maintained over the years but is showing signs of age. Some replacement and refurbishment of some facilities have taken place as part on an ongoing sustaining capital programme.

2.8.1 Air Transport

There is an international airport at Lusaka, some 670 km to the south of Chingola, which has links to South Africa, Kenya and other African and European countries.

There is also a regional airport at Ndola which has connections with Lusaka and international links to African countries in the region. There are also several airstrips at townships in the locality for use by private aircraft.

2.8.2 Road Access

Chingola is located on the main national highway between Lusaka and the Democratic Republic of Congo. The road provides a good link to the major highways servicing the South African continent.

The road is mostly single carriageway, although more stretches are being upgraded to dual carriageway and is in good condition. The roads are now becoming congested with large trucks as the development of industry in the country expands.

2.8.3 Rail Access

There is an existing single track railway which runs from the south of the country through Lusaka, Kapiri, Ndola and terminates at Chililabombwe. The 'Tazara' railway, the Zambia/Tanzania railway, starts at Kapiri and provided a railway connection between the Copperbelt and the major port of Dar es Salaam. There is also a connection to the Democratic Republic of Congo at Ndola but at present this is not used very much.

The railway line passes through Kitwe and Chingola, providing a rail connection between the major locations of the KCM facilities.

The railway is operated under concession from the Zambian Government by the 'Railway Systems of Zambia' (RSZ) and is generally in poor condition. The locomotives and rolling stock are old and poorly maintained and trains are prone to derailments due to the bad state of the track. Whilst rail transport costs are cheaper, Zambian railways cannot guarantee availability of trains when required and trains are generally unreliable.

There is also a risk of theft of goods from the wagons whilst the trains are en-route. KCM has to provide security guards to travel with the trains to minimise the theft.

2.8.4 Transportation of Copper and Other Products

Approximately 90% of the copper produced by KCM is exported via Dar es Salaam, of which 90% is transported to the port by rail, using the rail link at Kapiri, and 10% by road. However, because of the problems with rail transportation, the copper transported by rail is taken mostly to Kapiri by road where it is loaded into wagons.

The remaining 10% of copper is exported via Durban and is transported by road and rail directly from the plants.

The movement of products between facilities is generally a mix of rail and road but the unreliability of the rail and the need to transport some products at short notice results in the use of road transport for the majority of the time.

The means of transporting the concentrate from the new mine expansion at Konkola will initially be by road. A proposal to taking over responsibility for the section of railway between Chililabombwe and Kitwe and refurbishing the rail transport system was being considered in August 2005.

2.8.5 Electrical Power Supply

In August 2005 the Copperbelt Energy Corporation (CEC) were contracted to supply electricity to KCM with an obligation to meet a demand from KCM of 250 MVA, of which 180 MVA was then required. Development of KDMP and the installation of the new smelting capacity would increase KCM's demand to approximately 340 MVA.

2.9 Saleable Products

KCM sells:

- Copper cathodes of two brands
  - From the TLP, named KBC cathode
  - From the Nkana refinery, named REC cathode
- Anode slimes containing silver, gold and other metals.

KCM may also sell pyrite from Nampundwe and copper or limited amounts of cobalt concentrate. However, for the purpose of projecting sales and revenues, only copper cathodes and slimes are regarded as regular sources of income.

3 KONKOLA BUSINESS UNIT

3.1 Geological Characteristics

3.1.1 Konkola Deposit

The Konkola Deposit is a very large copper deposit situated on the northern section of the Copperbelt. The Katangan sediments that contain the copper mineralisation are draped around a core of basement rock. Dips are in the range 15-70 degrees. Relatively continuous grades and thickness commonly occur on a regional scale with local variations being due to areas of structural thickening of the Ore Shale Formation and low grade zones resulting from leaching around faulted ground.

Copper mineralisation in the Ore Shale Formation is typically 2-20 m thick, and is also found in its immediate footwall and hanging wall. Economic grades of mineralisation (approximately 4%TCu) are generally consistent within the stratabound deposit and extend over a 7 km strike length at surface, extending to over 10 km at depth (>1,400m). The deposit is "open" at depth. The orebody thins out at its eastern extremity due to the development of arenaceous facies within the Ore Shale Formation. To the south-east it is cut by the Luansobi fault zone.

Primary mineralisation is mainly of bornite and chalcopyrite with secondary copper minerals being widespread above the 275 m Level, including chalcocite, malachite, chrysocolla, covellite and azurite. Further, general zonation is from chalcocite near surface to pyrite at depth.

Grade and thickness in the Ore Shale are generally continuous on a regional scale with local variations being due to areas of structural thickening and low-grade zones resulting from leaching around faulted ground. Copper grades across the orebody thickness drop abruptly at the upper and lower contacts of mineralisation, and are demarcated by the following:

- Assay footwall ("AFW") is often below the geological footwall ("GFW");
- The AFW can be taken as the GFW where it occurs above the GFW;
- The Assay hanging wall ("AHW") is generally within the Ore Shale; and
- Only minor mineralisation occurs in the hanging wall quartzites above the 1%TCu cut-off.

Disturbed ground and minor faulting with throws of less than 10 m are present throughout the deposit.

The Konkola deposit is positioned between two major faults; the Lubengele in the north and the Luansobe in the south. These faults form the main hydrogeological boundaries to the deposit.

The Ore Shale Formation is located between three main aquifers:

- Hanging wall aquifer located 30 m to 180 m above the Ore Shale;
- Footwall aquifer directly on the Ore Shale contact; and
- Footwall quartzite 400 m below the Ore Shale.

The hanging wall aquifer contributes 35% of the water in the mine and mainly comprises carbonate rocks, limestones, dolomites and calcareous sandstones and siltstones, while the footwall aquifers provide 65% of the total water inflow and are composed of siliceous rocks: quartzites, sandstones and conglomerates. As a generalisation, the quantity of water inflow to the mine increases with steepening dip of the stratigraphy due to the development of wider fracture zones.

3.2 Reserves and Resources

3.2.1 Estimation Methods

The information database for Konkola Mine includes geological and assay information obtained from surface and underground drilling (1,828 boreholes) and channel samples (767) obtained from crosscuts. This database is not evenly distributed over the orebody. Crosscut data is located across the southwest flank of the

Kirilabombwe Anticline. Underground drilling data is obtained from current mining operations, and surface-drilling data is distributed over the current lease area limits. The supporting information for estimation of the deeper sections (Konkola Deep) is therefore heavily dependent upon the surface borehole database, some of which is reported to date from the 1930s. Underground sampling is achieved by drilling at 50m separation along the main development drives.

For resource estimation purposes, the cut off grade is 1.0% TCu and cut off thickness is termed by KCM as 6 m% or 6 m of width for each percentage point of cut off grade, based on geological and not economic considerations.

Geological modelling of the current Konkola mine using Gemcom software is based on boundary limits drawn on geological sections spaced some 100 m apart with local infill sections as appropriate.

KCM determined that for a resource at Konkola to be classified as "Indicated" under the SAMREC code, the estimate of the equivalent of a year's production should be accurate within 15% of the true value at a 90% confidence level. 'Inferred' resources are classified as those that fall outside the 15% accuracy at 90% confidence. For measured resources, the estimate of the equivalent of a month's production should be accurate within 15% of the true value at a 90% confidence level. IMC agree with these criteria and the KCM classification approach.

3.2.2 Reserves and Resources Statements

Table 3-1and Table 3-2 show the KCM reserves and resources statements for Konkola as of August 2005 which have been reviewed and verified by IMC. It should be noted that these resources do not include, and are additional to the reserves.

Table 3-1 KCM Konkola Reserves

Operation	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Konkola (Ore Shale Only) LOM = 12 years	Proved	4.12			3.28	0.28
	Probable		16.36		3.32	0.33
	Total			**20.48**	**3.31**	**0.32**

Table 3-2 KCM Konkola Resources

	Resource Category	Measured (Mt)	Indicated (Mt)	Measured and Indicated (Mt)	Inferred (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Konkola (FW & HW)	Measured	1.16				2.57	0.61
	Indicated		24.81			2.46	0.50
	Total			**25.97**		**2.46**	**0.51**
	Inferred				16.83	1.87	0.62
Konkola Deep Mine Project	Measured	1.60				3.53	0.43
	Indicated		103.93			4.37	0.44
	Total			**105.53**		**4.36**	**0.44**
	Inferred				87.10	4.10	0.62

Section 2.6 above identified a potential source of additional resources not currently owned or licensed to KCM in August 2005, which is discussed in the IMC projections Section 3.5.6.3 below.

3.3 Facilities

At the Valuation Date the facilities at Konkola consisted of an underground mine sunk in 1956, a concentrator and tailings disposal facilities.

3.3.1 Mining Facilities

The underground mine had two shaft sections, 1 shaft and 3 shaft. These areas were linked but run as separate production units. No 1 Shaft was the first to be sunk and is to a depth of 1,070 m, and 3 shaft is to a depth of 600 m. Both shafts were equipped for hoisting ore and waste plus personnel and materials. The rock hoisting capacity of each shaft was approximately 2.15 Mtpa. However, shaft capacity was not a production constraint as ore generation was significantly below these levels.

Haulage levels were being mined at 60 m vertical spacing, although previously these had been at greater intervals. The lowest haulage level was the 950 m haulage.

The mining methods in use were sub-level open stoping (SLOS), and longitudinal room and pillar. SLOS was mechanised, but lack of development in the years prior to 2005 had limited the number of stopes available for production. The mining equipment available was in good condition and well maintained.

At the Valuation Date production was constrained by the availability of new stopes through lack of development. Part of the programme to address the mining situation included the rehabilitation and acquisition of drill jumbos, dump trucks, LHDs and locos.

Konkola was and remains an extremely wet mine with pumping requirements of around 240,000 m^3 of water per day to enable stoping operations to be maintained in a dewatered state. Water control consists of a series of settlers and sumps on various levels. Total installed pumping capacity was reported to be 480,000 m^3 per day. Water control within the mine is good and the mining conditions are generally dry.

3.3.2 Process Plant

The plant dates from 1958 and, in August 2005, had a capacity of 2.4 Mtpa. No 1 shaft is close to the concentrator and the ore is delivered by conveyor belt. No 3 shaft is some 3 km distant and ore is delivered by 30 t and 50 t truck.

Ore grade was typically 3.5 to 3.8% from No 1 shaft and 2.5 to 2.8% from No 3 shaft. The ore has an average grade of circa 3% copper. The copper is broadly described as being either acid insoluble (predominantly high-grade sulphide minerals) or acid soluble (essentially oxide copper although small amounts of bornite and chalcocite are also soluble in acid). The flotation recovery of the acid insoluble minerals is high at above 90 %, whereas the recovery of the acid soluble fraction is at circa 40% range. Gangue material is predominantly silica with some dolomite.

3.3.2.1 Concentrator

The processing route entailed washing, two stages of crushing, milling, flotation of sulphide mineral and flotation of oxide mineral and finally dewatering.

The first stage of processing was washing to remove fines from the minus 150 mm ore. There were two washing plants. The South washing plant took ore from No 1 shaft and the North washing plant took ore from No 3 shaft.

The milling circuit was designed to produce a feed to the flotation circuit with a size of 85% passing 74 micron. The milling circuit consisted of nine Hardinge ball mills and two Vecor ball mills.

The main flotation circuit consisted of three banks of primary sulphide rougher cells, secondary sulphide rougher cells and oxide rougher cells.

The slimes flotation circuit consisted of one bank of cells. The concentrate was cleaned in a column cell and then re-cleaned whilst the tailings were pumped to two banks of cells for scavenging.

Dewatering of concentrate was by thickening, filtration and thermal drying. There were four thickeners followed by four drum filters. Thermal drying was done in two coal fired rotary dryers.

Tailings were pumped to a thickener. Thickener underflow was either pumped to the backfill plant or direct to the tailings dam. The backfill plant used cyclones to separate and thicken tailings so the coarse fraction could be used in backfill underground; the fine fraction was pumped to the Lubengele tailings dam.

3.3.2.2 Concentrator Condition

The Konkola concentrator has its origins in the 1950s and some original structures and equipment remain. The plant has been greatly extended during its life and many items of new equipment had been installed at the Valuation Date. However, as it is an old plant, maintenance costs were high in comparison with newer concentrators. Labour numbers were also higher than would be usual in newer plants.

In August 2005 the condition of the plant had been adversely affected because there had been a minimal amount of replacement capex in the preceding years. However, as part of KDMP it was due to be refurbished and expanded from 2.4 Mpta to 3.0 Mpta.

The condition of the instrumentation and control equipment was generally poor. There was effectively no automation of the control of the plant so the efficiency of operation was dependant on the skills of the operators.

Although the copper grade of the concentrate produced, averaging almost 42% Cu over the period January 2002 to July 2005, was high, the concentrate was not very clean and contained a high percentage of insoluable matter ("insols"). A clean concentrate would normally contain less than 10% insols but the concentrate from Konkola contained circa 27%

3.3.3 Tailings Disposal

The Konkola Tailings were and still are disposed of at the Lubengele Tailings dam, situated approximately 4 km north of the process plant. The tailings facility was constructed in 1964 in a natural valley into which 4 streams flow.

In August 2005 the tailings generated within the plant were piped to the tailings dam through one of two pipes which operate alternately. The dam consisted of two separate ponds within the dam area through which the water passed until coming to the surface decant point where the water was discharged via a penstock into the Lubengele Stream, which ultimately joins the Kafue River. Drainage from the embankment was collected by filter drains. A spillway was due to be constructed to accommodate emergency runoff.

Erosion of the wall was occurring due to the angle of the dam wall. The erosion gullies that formed were backfilled every two years with course tailings or rockfill. In order to prevent erosion from occurring, vegetation of the walls was being undertaken.

3.3.4 Management

The management team at Konkola in August 2005 comprised a complete team of long term former ZCCM employees who had been associated with Konkola or other KCM facilities for the majority of their professional careers. They operated from a suite of offices close to the mine site and were in daily and constant hands-on control of the operations.

In or around August 2005 a project team was being established in the same offices to oversee the developing KDMP activities.

Both of these teams appeared to operate in a reasonably autonomous manner at the operational level. August 2005 was also the time when the Business Units were being established as stand alone profit centres which would further enhance their autonomy.

All the members of the KCM Konkola management team who were in contact with IMC appeared to be well informed, competent and confident in their positions and fielded all our questions without reference to higher authorities except where the release of certain items of what could be considered commercially sensitive information was involved.

3.3.5 Infrastructure

3.3.5.1 Electrical Power

Copperbelt Energy Corporation (CEC) receives power from Zambian Electricity Supply Corporation (ZESCO) at the Central Switching Station in Kitwe and at Luano Substation outside Chingola. In August 2005 Konkola Mine received power from CEC at 11 kV from the Bancroft and Bancroft North Substations.

The electricity supply was stable and very reliable, with only minor outages having occurred in the years prior to 2005. In such cases, emergency power for essential loads was provided by two 10 MW gas turbine alternators at Bancroft substation and other standby generators in the region.

The distribution equipment is mostly 25 to 30 years old with some switchboards over 50 years old. In August 2005 spare parts were a problem to obtain but the staff was managing to maintain the equipment in good working order.

The agreement to supply electrical power to KCM as a whole was first established with CEC in March 2000 for a period of 20 years. The initial obligation was for CEC to meet a maximum demand of 250 MW with an escalation up to 300 MW provided KCM did not purchase the Nkana smelter. As the smelter was purchased, the maximum demand under the initial KCM contract was limited to 250 MW in accordance with the agreement. However, upon acquisition of the Nkana smelter, KCM inherited a second supply contract for up to 75 MW. Both agreements also made provision for a certain capacity to be protected, for the safety of the operations, during any periods of load shedding.

In August 2005 KCM as a whole required 180 MW of the contracted 250 MW maximum demand, where the Konkola complex accounted for approximately 75 MW. Upon full implementation of KDMP and commissioning of additional smelting capacity KCM's total power requirement is estimated as 340 MW.

The costing structure of the power supply agreement is discussed in the IMC operational cost projections in Section 3.5.3.3 below.

3.3.5.2 Water Supply

The water supply for the mine was and continues to be obtained from the underground water pumped out of the mine. The water discharged is distributed through a manifold to the various consumers, with the excess water discharged in the drain system.

Some of the water is passed to a local water treatment plant to produce potable water for the mine and township.

3.3.5.3 Workshops

The Konkola mine has extensive workshop facilities for the fabrication, repair and maintenance of equipment used at the mine. These facilities have not undergone any significant change since August 2005.

3.3.6 Environment

In August 2005 KCM was regulated by both Zambian Legislation and World Bank Guidelines, although certain derogations from the latter were granted under the terms of the Development Agreement with the Zambian Government. The primary legislation in Zambia is the "Environmental Protection and Pollution Control Act 1990" and the Environmental Council of Zambia (ECZ) was the regulatory body overseeing the environmental legislation.

An annual environmental audit was conducted by an external consultant and the results submitted to the ECZ. Aspects where Konkola Mine was not compliant with legislation were as follows:

- Solid waste separation was occurring on site, however the contractor collecting the waste remixed it prior to disposal;
- Waste oil storage in the concentrator is done within an area without bunding or impervious surfacing;
- High concentration of total suspended solids (TSS) in the waste water were being discharged into the Kafue River due to the lack of storage space and settling capacity at the mine.

The provision of waste oil and mine water settling facilities have cost implications, which are detailed below in the IMC environmental cost projections.

3.4 Konkola Deep Mine Project

The project objective was to access and work the copper resources underneath the then current production area in the vicinity of No 1 Shaft. A new No 4 shaft for ore men and materials together with a deepened No 1 Shaft would access these resources down to 1,400 m. New ventilation and service shafts would support the production activities and de-watering requirements.

It was intended to increase the ore production to 6 Mtpa which would be processed into a concentrate on site and dispatched for smelting and refining at other KCM facilities.

The initial planning for KDMP as it was envisaged in August 2005 was undertaken in a feasibility study dated 2001 during the Anglo American ownership period, and this was updated in May 2005 following Vedanta's acquisition of its shareholding in KCM. With the exception of the concentrator (see below) this update left the majority of the technical aspects unchanged but the financial appraisal was revised to reflect 2005 prices and costs. The project was granted conditional KCM board approval in May 2005 and full KCM and GRZ approval in July 2005.

3.4.1 Mining

The May 2005 updated feasibility study (KDMP FS) foresaw a construction period running from the August 2005 award of a shaft sinking contract up to the final commissioning of the 1,390 m pump station in March 2012. Mid-shaft hoisting from the new No 4 shaft would commence in October 2007 and this would allow increased amounts of waste hoisting, plus the increase in ore hoisting. It would also enable the commencement of No 1 shaft rehabilitation.

The previously mainly non-mechanised, open stoping methods would be converted to mechanised cut and fill type methods, which was envisaged to result in a significant reduction in dilution and improvement in copper recovery.

3.4.2 Mine Drainage

The Konkola mine has to pump a large amount of water to maintain the mine in a safe condition. In August 2005 approximately 240,000 m^3 of water was being pumped out of the mine each day. This was expected to increase to over 400,000 m^3 per day once KDMP was in production. The project feasibility study design estimated a pumping requirement of 480,000 m^3/day, assuming a safety factor of +20%, to maintain the required rate of de-watering.

The demands of the expansion project were planned to be met by the installation of new pumps at the 1,380 m level which would pump to higher levels and the installation of new pumps at the 950 m level which would pump water directly out of the mine.

The final pumping system envisaged by the KDMP FS would have a total installed power requirement of 90 MW. Electrical distribution equipment would be refurbished or renewed to ensure all equipment was suitable and reliable. Once the new pumping installation was completed the mine drainage system would have been modernised and would in IMC's opinion, have sufficient capacity for the envisaged requirement.

3.4.3 Processing

The original feasibility study in 2001 specified an all new 6 Mtpa concentrator. However, the updated study of May 2005 instead proposed the refurbishment and expansion of the existing concentrator to 3 Mtpa, and the building of a new 3Mtpa concentrator. IMC analyses of these two alternatives in Section 3.5.2.1 below.

3.4.3.1 Expansion of Existing Concentrator to 3 Mtpa

In May 2005 a study was published which detailed the modifications required to increase the capacity of the existing concentrator to 3 Mtpa. The report entitled 'KONKOLA CONCENTRATOR FEASIBILITY STUDY

OF ENHANCEMENT OF ORE HANDLING CAPACITY FROM 2.4 MTPY TO 3.0 MTPY' dated 19.05.2005 (Enhancement Feasibility Study), considered the following:

- Design basis and plant availability
- Crushing and screening
- Grinding circuit
- Pre-thickening, flotation and regrinding
- Dewatering

The report, prepared by an Indian process design consultant known as MBE, concluded that the concentrator capacity could be increased to 3 Mtpa based on 365 day working and 90% availability if the crushing, screening and dewatering sections were refurbished and additional grinding and flotation capacity was provided.

3.4.3.2 New 3 Mtpa Concentrator

The updated 2005 feasibility study envisages a new concentrator being built adjacent to the new No 4 shaft. The new plant would consist of a 3 Mtpa module comprising a mill feed silo, SAG and ball milling and large flotation cells. This was planned to allow the plant to treat a total of 6 Mtpa ore by 2008. Concentrate from both the new and the old expanded facilities would be thickened using the existing thickeners and then filtered in a new filter plant to be sited near the current concentrate shed. The filtered concentrate would be placed in covered storage prior to despatch by rail or road.

3.4.4 Tailings Disposal

At 6 Mtpa the capacity of the Lubengele dam provides in excess of eighty days residence time. This is more than sufficient for natural settlement of the fine material in the increased volumes of waste water to be discharged from the expanded process plant.

However, the wall of the dam has to be raised by approximately 10 metres to provide the necessary capacity for tailings discharge up to 2031 and the existing penstock will be replaced with a spillway. The wall design is based on a 1 in 100 year, 24 hour floodline.

3.4.5 Electrical Power

In August 2005 the maximum demand of the Konkola complex was approximately 75 MVA. However, the expansion of the mine with KDMP would be expected to increase the demand to approximately 140 MVA with a significant proportion of the increase in the safety protected category associated with mine water pumping and ventilation.

3.5 IMC Forecasts

Starting from KCM's plans for Konkola IMC has, where appropriate, made modifications based on the information available and our understanding of the assets as of 12th August 2005. Our approach has been to produce a set of projections which we consider achievable and optimal and which we believe a buyer might reasonably be expected to have applied when valuing Konkola at 12th August 2005

The KDMP FS plan for Konkola consisted of two parts:

- Continuation of the existing Nos 1 and 3 shaft mining operations. These were to constitute the main source of production in the period up to 2012.
- Development of KDMP for long term production from the deeper deposits post 2010.

The May 2005 updated feasibility study showed KDMP as a viable economic project which was incorporated, with some modifications highlighted in Table 3-4 and Table 3-5, into the KCM LOM plan. IMC's own views as to the evolution of production and costs at Konkola are set out in the remainder of this section.

3.5.1 Mine Plan

The KDMP FS shows that, in August 2005, KCM considered that the Konkola mine (excluding KDMP) had a remaining life of mine of around 12 years. Production at No 3 Shaft could continue for a further 1-2 years after that (i.e. up until 2018/19), but this was not considered significant by IMC in the context of KDMP, which would be in full production by that date.

KCM's projections for the extraction of the remaining reserves from the existing Nos 1 and 3 shaft configuration were based on 2004 production rates, shown in Table 3-3 below, increasing by approximately 10% per year. Improvement in the August 2005 development situation to provide more production stopes and the acquisition of new mining equipment as envisaged in August 2005 should, in IMC's opinion, render the projected increases in mined ore achievable. However, No 1 Shaft has a hoisting capacity of around 2.0 Mtpa, and ore production at is capped at 1.35 Mtpa because of waste hoisting of 0.65 Mtpa. No 3 Shaft has a hoisting capacity of around 3.0 Mtpa, and ore hoisting is capped at 1.8 Mtpa, again to allow for waste hoisting of 1.2 Mtpa. Until the KDMP shaft construction works are completed IMC therefore considers that these shaft capacity constraint would prevent production from exceeding 3.15 Mtpa in total.

Table 3-3 Konkola Mine Production History

	Item	Unit	2003	2004	2005	2005
					Jan - Mar	April - July
Konkola 1 shaft	ROM	Mt	1.02	1.1	0.32	0.30
	Grade	TCu %	3.05	3.06	2.82	3.01
	Cont TCu	t	31,192	32,369	9,111	9,082
Konkola 3 shaft	ROM	Mt	0.90	0.83	0.25	0.30
	Grade	TCu %	2.81	2.56	3.27	2.46
	Cont TCu	t	25,440	21,164	8,036	7,376

Once the KDMP is in production it will dominate the ore output from the mine, and this is reflected in the KCM LOM plan projections. The main differences between the KDMP FS and KCM LOM plan emanate from the starting point and the initial years, which are shown in Figure 3-5.

- KDMP FS production is a mixture of the existing mine budget followed by the deep mine production from 2007-08 whilst KCM LOM is similar with a delayed steady state production
- KDMP FS did not present costs prior to 2007-08 whilst KCM LOM are initially projections from the 2005-06 Budget

The KDMP FS and KCM LOM plan projections, shown in Table 3-4 and Table 3-5 below, treat both the pre-existing Konkola operations and the Konkola Deep Mine Project as one production unit. The essential operational parameters of the mine plan which we consider require scrutiny are:

- Construction schedule
- Ramp up period
- Production and mine life

Table 3-4 shows the first seven years of the KDMP FS, KCM LOM plan and IMC's mine production and processing projections and contains the critical construction and ramp up period, whilst Table 3-5 shows the steady state period up to year 15 together with the final year and totals. Both tables show the variances between the IMC and KCM projections for the following parameters.

- Ore mined and hoisted;
- Ore grade;
- Concentrate production;

- Concentrate grade;
- Copper in Concentrate; and
- Copper Recovery

IMC considers that a buyer of the assets in August 2005 would likely adopt the projections contained within the KDMP feasibility study and KCM LOM plan with the exceptions of (a) the profiles of the construction period and the consequential build up of mined ore to steady state contained in both the KDMP FS and the KCM LOM plan and (b) the concentrate production grade projected in the KCM LOM plan, which IMC considers would be dropped in favour of those projected in the KDMP FS.

Table 3-4 Konkola Production Projection Comparison, Years 1 to 7

		0			1	2	3	4	5	6	7
		2005	**Aug 05-Mar 06**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
		Actual	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**
KDMP Feasibility Study Projections											
Ore hoisted	Mt			2.34	3.00	4.50	6.00	6.00	6.00	6.00	6.00
Ore Grade	%			3.07	3.00	3.14	3.21	3.21	3.28	3.28	3.27
Conc production	000 t			190.6	192.9	303.6	413.6	413.6	421.8	421.8	421.0
Conc grade	%			35.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Copper in conc	t			66,722	79,076	124,459	169,564	169,589	172,956	172,954	172,608
Cu recovery	%			93.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0
KCM LOM Plan Projections		Actual 2005 = April - September									
Ore hoisted	Mt	0.99	1.19	2.19	2.69	3.00	4.50	6.00	6.00	6.00	6.00
Ore Grade	%	2.93	3.14	3.05	3.00	3.14	3.21	3.21	3.28	3.28	3.27
Conc production	000 t	66.8	87.4	154.3	202.8	236.8	363.3	484.5	494.8	494.2	493.2
Conc grade	%	38.06	38.00	38.03	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Copper in conc	t	25,437	33,222	58,659	70,973	82,896	127,156	169,588	173,184	172,953	172,608
Cu recovery	%	87.51	88.52	88.07	88.00	88.00	88.00	88.00	88.00	88.00	88.00
IMC Operational Plan Projections		Actual 2005 = April - July									
Ore hoisted	Mt	0.60	1.33	1.93	2.50	2.70	3.00	4.00	6.00	6.00	6.00
Ore Grade	%	2.74	2.79	2.78	3.00	3.14	3.21	3.21	3.28	3.28	3.27
Conc production	000 t	42.5	93.3	135.8	183.3	196.3	211.9	275.8	422.4	421.8	421.0
Conc grade	%	36.97	35.00	35.62	36.00	38.00	40.00	41.00	41.00	41.00	41.00
Copper in conc	t	15,709	32,654	48,362	66,000	74,606	84,770	113,059	173,184	172,953	172,608
Cu recovery	%	95.44	88.00	90.29	88.00	88.00	88.00	88.00	88.00	88.00	88.00
Variance IMC to KDMP FS											
Ore hoisted	Mt			-0.18	-0.50	-1.80	-3.00	-2.00			
Ore Grade	%			-0.30							
Conc production	000 t			-36.14	-9.54	-107.23	-201.65	-137.88	0.56		
Conc grade	%			0.54	-5.00	-3.00	-1.00				
Copper in conc	t			-11,813	-13,076	-49,852	-84,794	-56,530	228		
Cu recovery	%			-1.66							
Variance IMC to KCM LOM Plan Projections											
Ore hoisted	Mt	N/A	N/A	-0.26	-0.19	-0.30	-1.50	-2.00			

Ore Grade	%	N/A	N/A	-0.27							
Conc production	000 t	N/A	N/A	-18.5	-19.4	-40.5	-151.4	-208.8	-72.4	-72.3	-72.2
Conc grade	%	N/A	N/A	-2.4	1.0	3.0	5.0	6.0	6.0	6.0	6.0
Copper in conc	t	N/A	N/A	-10,297	-4,973	-8,290	-42,385	-56,529			
Cu recovery	%	N/A	N/A	2.2							

Table 3-5 Konkola Production Projection Comparison, Years 8 to 15 and 29

		8	9	10	11	12	13	14	15	29	Total
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2034-35	
		Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Projection
KDMP Feasibility Study Projections											
Ore hoisted	Mt	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.00	170.84
Ore Grade	%	3.27	3.34	3.34	3.34	3.34	3.34	3.34	3.39	4.24	3.48
Conc production	000 t	421.5	430.3	430.3	430.3	430.3	430.3	430.3	436.7	455.4	12,772.0
Conc grade	%	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Copper in conc	t	172,834	176,443	176,443	176,443	176,443	176,443	176,443	179,051	186,706	5,236,525
Cu recovery	%	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0
KCM LOM Plan Projections											
Ore hoisted	Mt	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	167.38
Ore Grade	%	3.27	3.34	3.34	3.34	3.34	3.34	3.34	3.39	3.34	3.47
Conc production	000 t	493.8	504.1	504.1	504.1	504.1	504.1	504.1	511.6	533.4	14,606
Conc grade	%	35.00	34.28	35.00	35.00	35.00	35.00	35.00	35.00	35.00	34.99
Copper in conc	t	172,835	172,835	176,443	176,443	176,443	176,443	176,443	179,051	186,706	5,111,003
Cu recovery	%	88.00	88.00	88.00	88.00	88.00	88.00	88.00	88.00	88.00	
IMC Operational Plan Projections											
Ore hoisted	Mt	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	163.53
Ore Grade	%	3.27	3.34	3.34	3.34	3.34	3.34	3.34	3.39	3.54	3.48
Conc production	000 t	421.5	430.3	430.3	430.3	430.3	430.3	430.3	436.7	455.4	12,255
Conc grade	%	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	40.81
Copper in conc	t	172,835	176,443	176,443	176,443	176,443	176,443	176,443	179,051	186,706	5,001,866
Cu recovery	%	88.00	88.00	88.00	88.00	88.00	88.00	88.00	88.00	88.00	88.00
Variance IMC to KDMP FS											
Ore hoisted	Mt									1.00	-6.54
Ore Grade	%									-0.71	-0.01
Conc production	000 t										-490.2
Conc grade	%										-0.13
Copper in conc	t										-216,075
Cu recovery	%										-0.04
Variance IMC to KCM LOM Plan Projections											
Ore hoisted	Mt										-3.85
Ore Grade	%									0.19	0.00
Conc	000 t	-72.3	-73.8	-73.8	-73.8	-73.8	-73.8	-73.8	-74.9	-78.1	-2,350.5

production											
Conc grade	%	6.0	6.7	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.8
Copper in conc	t		3,608								-112,745
Cu recovery	%										0.0

3.5.1.1 Construction Schedule

IMC considers that a buyer of the Company in August 2005 would view even the KCM construction schedule implicit in the LOM plan projections to be optimistic both in terms of time to mobilise a contractor given that contractors had not been appointed in August 2005 and the rates of construction activity to be achieved.

Table 3-6 Contract Letting Timetable

Activity	Pre-2004 Expected Duration (weeks)	Post-2004 Expected Duration (weeks)
Contractor Pre Qualification	4	8
Prepared Tender Specification	5	5
Issue Tender Documents	1	1
Tender Responses	12	16
Tender Evaluation	8	8
Contractor Tender Meetings	4	8
Identify Preferred Bidder	2	2
Contract Negotiations	2	4
Contract Award	2	2
Contract Effectiveness	2	2
Mobilisation	8	16
Totals	50	72

Table 3-6 above shows two illustrative timetables for the preparation and letting of a construction contract for this type of mine involving multiple shaft sinks. Since 2004 mine construction activity has increased significantly world-wide and various elements of contract letting have taken longer, mainly due to constraints on the availability of contractor staff and the number of tenders being processed at any one time. Under pre-2004 circumstances we would expect it to take just under 12 month to mobilise whereas by August 2005 we consider this would have extended to 17 months. With the number of mining projects under construction in August 2005 it would be unrealistic to assume a buyer to expect to appoint a contractor in less than 16 months, and IMC has adjusted KCM's construction schedule accordingly.

Total capacity for each of the three shafts at their various stages of development and the requirement to hoist waste rock from the shaft sinks, strategic and replacement development roadways accessing the deeper measures is likely to be the critical issue controlling progress of the construction programme. Through review of the construction schedule and discussion with the project team it is clear to IMC (and would, we believe, be clear to a buyer) that the commencement of mid-shaft hoisting at No 4 shaft would only allow a partial increase in mine ore production hoisting, and that full production of 6 Mtpa would only commence once hoisting from the 1,430 m loading station commences in April 2010.

3.5.1.2 Ramp Up Period

IMC considers that and any reasonable likely buyer of KCM in August 2005 would have assumed that the full production rate of 6 Mtpa would not have been achieved in 2009-10 but in 2010-11. Table 3-7 shows the comparison of the KDMP FS, KCM LOM hoisting plan and the IMC adjusted schedule taking into account the effects of delayed contract letting and shaft winding conflicts. In the short time between May and October 2005 these issues, highlighted by IMC, were already being recognised in the KCM LOM plan but we believe that the full implications were not appreciated and the delay to the KDMP FS phasing would be 24 and not 12 months.

Table 3-7 Konkola Hoisting Plan Comparison

	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014
KDMP FS Plan (Mt)	2.34	3.00	4.50	6.00	6.00	6.00	6.00	6.00	6.00
KCM hoisting Plan (Mt)	2.19	2.69	3.00	4.50	6.00	6.00	6.00	6.00	6.00
IMC Adjusted Plan (Mt)	1.93	2.50	2.70	3.00	4.00	6.00	6.00	6.00	6.00

3.5.1.3 Production and Mine Life

The reserves report, updated to August 2005, accounts for only 20.5 Mt of ore reserves. In addition, the total measured, indicated and inferred in situ ore resources of the existing Konkola and the new Konkola Deep Mine sum up to approximately 235 Mt. However, the 17 Mt of inferred resources associated with the existing mine are likely to be inaccessible leaving a practical total of 214 Mt of reserves and mineable resources (allowing for losses and dilution). According to the IMC projections the total ore production until 2035 will be approximately 164 Mt. The remaining 50 Mt ore would allow for another 8 years of mine operation at 6 Mtpa capacity. However, it has to be noted that the mineable resources include approximately 78 Mt of inferred resources. Assuming that all of the remaining 50 Mt of mineable resources at the end of the plan are inferred, the mine plan to 2035 already includes approximately 28 Mt of the production from inferred resources.

Normally, inferred resources are upgradeable to reserves only after considerable additional exploration because of their limited geological knowledge. To include 5 years production in the LOM plan shows a positive approach on KCM's part which IMC would expect an acquirer of the asset to replicate or, more probably, surpass. IMC would normally consider that 50% of the inferred resources would eventually be converted to workable reserves in assessing a mine's potential but believes that an aggressive buyer would include up to 80% of the inferred resources in its valuation, thereby extending the mine's life by an additional 6 years to 2041 and we assumed that the valuation be conducted on that basis.

3.5.2 Processing Plan

The May 2005 KDMP FS provides for a two phase increase in concentrator capacity. In phase one the existing concentrator's capacity of 2.4 Mtpa would be expanded to 3.0 Mtpa by March 2006. The second phase would involve construction of an additional 3.0 Mtpa concentrator plant to bring the total ore treatment capacity to 6.0 Mtpa by the year 2008.

Throughput Considerations

The proposed increase in milling and flotation capacity and sundry uprating of equipment to take the existing concentrator throughput from 2.4 Mtpa to 3 Mtpa is considered feasible by IMC, provided that all the equipment specified was actually installed. It must be noted that this throughput would also depend on the concentrator operating at 90 % availability. IMC believes that, if a programme of preventative maintenance were to be implemented and the Enhancement Feasibility Study specified capital were to be spent on refurbishing the plant, 3.0 Mpta should be achieved and that a prospective buyer in August 2005 would take the same view. Appropriate annual capital and operating cost has been incorporated into the IMC projections.

However, IMC believes that an August 2005 buyer of KCM would consider the KDMP FS to be unduly optimistic in projecting the concentrator as capable of processing 3 Mtpa from April 2006. The lead time allowed on the major capital items required for the expansion, such as grinding mills and flotation equipment, would have been considered too short. Due to manufacturers' extensive order books for this type of equipment, lead times of 2 to 2.5 years from order to delivery were common in 2005.

The 4.5 Mtpa scheduled for 2007/08 would also have been viewed as unrealistic since this would have required the new concentrator module to be operational at design capacity from October 2007. The IMC revised operational plan and schedule is based on the mining parameters and constraints described above, which we believe the concentrator should be able to meet.

Concentrate Grade and Recovery Considerations

Figure 3-1 and Table 3-8 below show that for the period January 2002 to July 2005 actual concentrate grades have typically been above the KDMP FS target of 41% while the recoveries have typically been below the target of 88 %. However, processing projections in the KCM LOM plan show a recovery of 88% and a concentrate grade of 35% Cu over the life of the mine. IMC consider that this projection may have been unduly influenced by the fact that concentrate grades were down at 37% Cu in the period just prior to the LOM plan preparation and the figures for the 2005-06 budget assumed 35% Cu in concentrates.

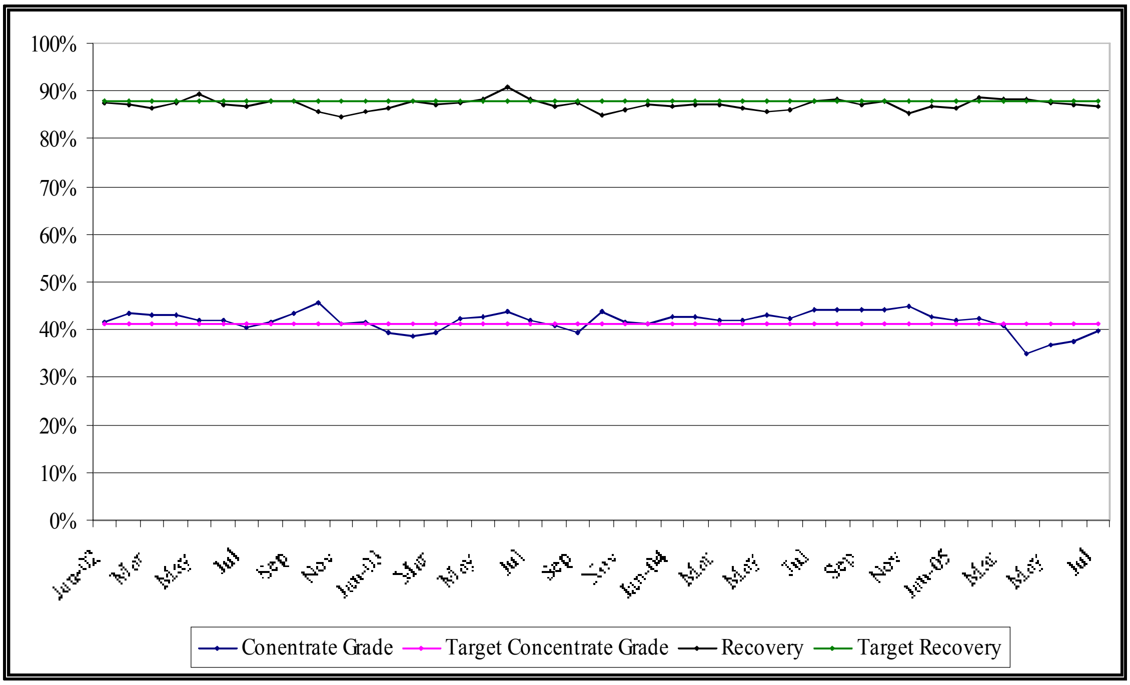


Figure 3-1 Konkola Concentrate and Grade History

Table 3-8 Konkola Concentrator Performance History

	Item	2003		2004		2005 Jan - Mar		2005 Apr - July	
		Budget	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**
Ore	Mt	2.253	1.921	2.095	1.884	0.582	0.571	0.78	0.60
Ore Grade	% Cu	3.34	2.94	2.97	2.84	3.00	3.02	2.80	2.74
Concentrate	t	155,212	122,270	125,473	107,574	37,255	36,358	63,739	42,490
Concentrate Grade	% Cu	42.0	41.4	43.00	43.17	41.50	41.57	35.00	36.97
Recovery	%	86.7	89.6	86.7	86.8	88.5	87.7	98.0	95.4

Figure 3-2 below shows that there was no predictable relationship between grade and recovery for the same January 2002 to July 2005 period. However, as with Figure 3-1 and also as shown in Table 3-8, it is clear that outcomes very close to the target of 88% recovery for a 41% concentrate grade had been achieved in the existing plant prior to August 2005 and therefore IMC considers, and would expect an evaluating buyer to also consider, that the planned 6 Mtpa concentrator (existing plant expanded to 3 Mtpa and a new 3 Mtpa module) would be capable of consistently meeting this target grade and recovery.

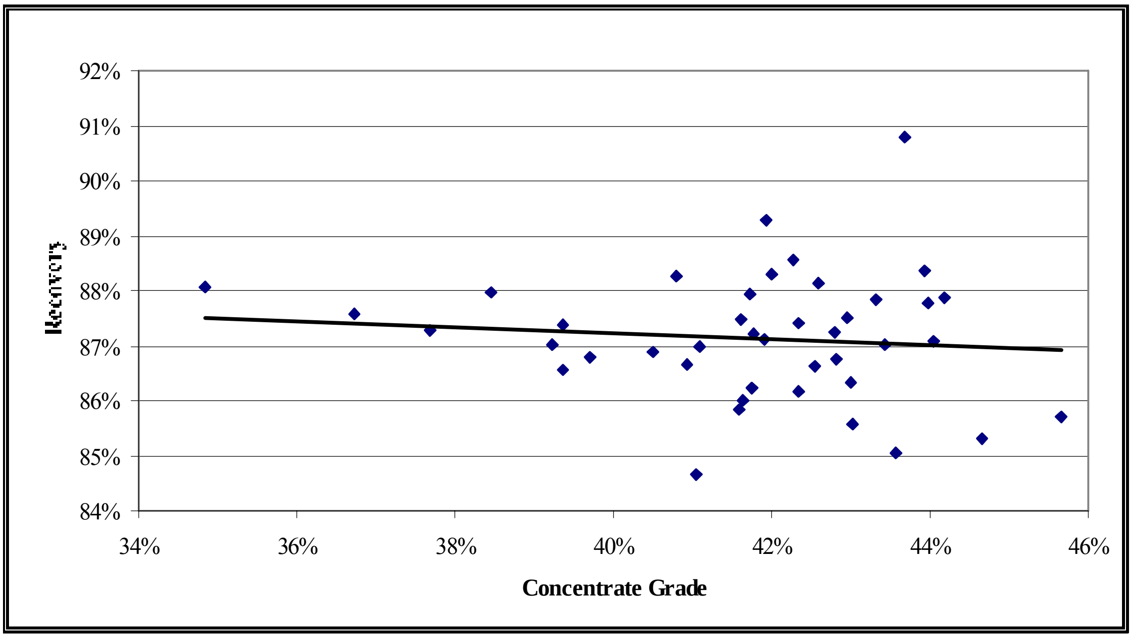


Figure 3-2 Konkola Recovery vs Grade History

3.5.2.1 New 6 Mtpa Concentrator

The KDMP FS of May 2005 was based on renovation and expansion of the existing concentrator from 2.4 Mtpa to 3 Mtpa and the construction of a new 3 Mtpa module. However, the 2001 feasibility study was based on an all new 6 Mtpa concentrator.

IMC has assumed that the control instrumentation on the old plant would be brought back to an 'as new' condition and that all recommendations from the Enhancement Feasibility Study would be implemented. The recovery and concentrate grades from the uprated concentrator should therefore meet the target values specified for the new 3 Mtpa concentrator.

IMC has compared the operating and capital costs of an "uprated-plus-new 3 plus 3" Mtpa concentrator and two new 3 Mtpa concentrators in order to assess whether a buyer might have identified (and hence potentially been willing to pay for) increased value arising from a possible change in design. Table 3-9 below shows the annual operating and total capital costs for the "uprated plus new" option used in the KDMP FS in 2005.

Table 3-9 KDMP FS Concentrator Costs

	US$ M	US$/t
Labour	1.17	
Other costs (assume all variable)	17.8	2.97
Capital expenditure	70.0	

Operating Cost

In order to calculate the operating costs for an all new plant, the following approach was adopted:

Variable costs

Variable costs for the new module were assumed to be lower than for the existing plant primarily due to a smaller number of major equipment items.

Variable costs for a new module were back-calculated by

- using the 2005 to 2006 budget to obtain variable costs for the existing plant (US$3.29/t)
- assuming these costs were used in the KDMP FS for the existing plant

The variable costs for the new module can therefore be calculated as 2*2.97-3.29=2.65/t.

Based on IMC's knowledge of copper of similar sized concentrators operating in 2005 and proprietary data base cost models its projection would agree with the back calculated estimate of 2.65/t.

Fixed costs

The new module would be operated with less personnel than the existing plant. An all new 6 Mtpa plant would need even less personnel than the combination of 3 Mtpa old and 3 Mtpa new plant. It appears that there had already been a considerable reduction in personnel numbers assumed, as the KDMP FS showed only US$1.169 M for labour for the existing and new plant whilst the 2005/06 budget shows labour costs of US$1.973 M just for the existing plant, then budgeted to operate at 2.34 Mtpa. IMC has estimated that labour cost for an all new 6 Mtpa concentrator would be approximately US$1 M, based on similar sized projects in 2005.

Capital Expenditure

The KDMP FS showed capital expenditure (both to upgrade the existing plant and to build the new 3 Mtpa unit) of US$70 M. In order to calculate incremental capital for an all new 6 Mtpa plant it was assumed that

- Capital for renovation and expansion of the existing plant was US$15 M (Enhancement Feasibility Study reported verbally)
- Capital for a new 3 Mtpa module would cost approximately US$55 M as shown in the KDMP FS
- Capital for a new 6 Mtpa plant would be approximately $2^{0.7}*55$ = US$89.3 M

IMC would consider these capital costs for new 3 Mtpa and 6 Mtpa concentrators to be good approximations for feasibility study standard tolerances based on its experience and proprietary data base cost models.

Net Present Value (NPV)

Using the IMC projections and a 15% discount rate, the all new 6 Mtpa plant would cost US$4.6 M more to build and operate than the KDMP FS option of 3 Mtpa existing and 3 Mtpa new, while at a 10% discount rate the all new 6 Mtpa plant would cost US$0.4 M less than the KDMP FS option. The all-new option would therefore have seemed markedly less attractive to a buyer using a 15% discount rate and only marginally more attractive for one using 10%. Either way, there appears to be no material value enhancement to be gained from switching to the all-new configuration. A reduced capital commitment for the same processing capability and no material NPV diminution is the approach IMC would expect a buyer to adopt for valuation purposes. IMC has therefore only looked at the "new plus existing uprated" concentrator option in its projected operational plan.

3.5.3 Operating Costs

3.5.3.1 Historic Operating Cost

In the KCM LOM plans the operating costs of Konkola mine comprise separate cost centres for:

- Mining, split into No 1 shaft and No 3 shaft

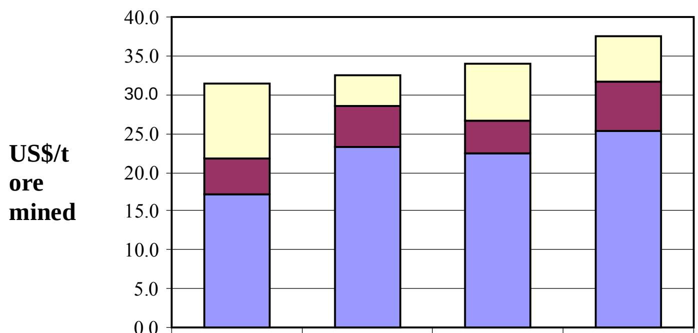
- Concentrator
- Administration

Figure 3-3 below shows the historic operating costs per tonne of ore for the two complete years and the four months prior to the Valuation Date, together with those budgeted for the financial year 2005-6 in each case split into these three cost centres.

Mining costs, which accounted for 68% of the total operating cost in the four months prior to the Valuation Date, rose from US$17.2 to US$25.3 per tonne of ore between 2003 and 2005 exceeding the 2005 budget by 10%, mainly influenced by the fall in ore production and the resulting effect of the fixed element of cost profile.

Concentrator costs, which were 17% of the total operating cost in the four months prior to the Valuation Date, were US$4.6 and US$5.3 per tonne of ore in 2003 and 2004 respectively. The budgeted reduction in cost for 2005/06 would have appeared unlikely to be achieved given that the actual costs for the first 4 months had exceeded the budget by 50% and throughputs were principally due to throughputs being below budget.

Administration costs from the previous years averaged between US$11 M and US$12 M or 15 to 17% of total cost which has be estimated for the April to July 2005 period.



	2003	2004	FY 2005-06 Budget	2005-06 4 Months Act
Administration	9.6	3.8	7.4	5.9
Concentrator	4.6	5.3	4.1	6.3
Mining	17.2	23.3	22.5	25.3

Figure 3-3 Konkola Operating Cost History

Figure 3-4 below shows the distribution of operating costs by category for the Konkola operation as a whole in August 2005. The major cost centres were power, manpower, stores and spares, consumables, repair & maintenance, others and administration in descending order. In producing its own forecasts, IMC has concentrated on the first four categories, which account for approximately 77% of the total cost.

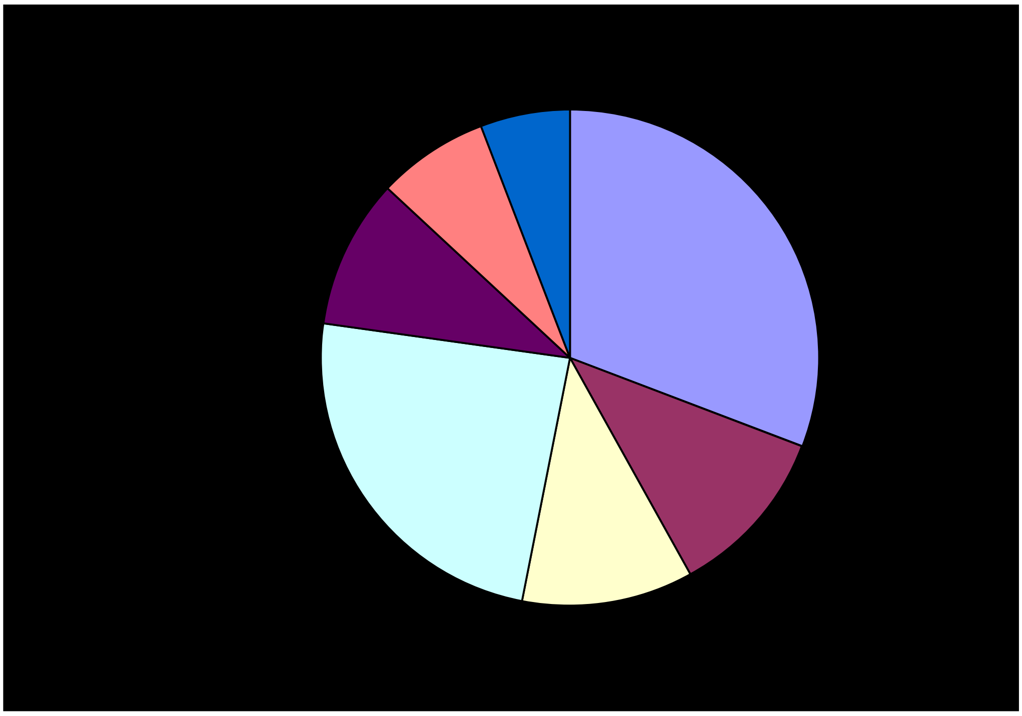


Figure 3-4 Distribution of Konkola Operating Costs

Table 3-10 and Table 3-11 show a breakdown of the mine and concentrator operating cost history per tonne of ore for the two complete years and the four months prior to the Valuation Date. It should be noted that the variance to budget figures have a cost and production component and should be viewed against a 23% shortfall in production for the 4 month period. IMC has used these historical operating costs in conjunction with KCM LOM or KDMP FS, which reflect themselves reflect history, as the starting point for its cost projections which are discussed individually or in groups in Section 3.5.3.3 below. We would have expected a buyer to use the same starting point for its valuation purposes.

Table 3-10 Konkola Mine Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05	Variance
	Actual ($/t)	Actual ($/t)	Actual ($/t)	Budget ($/t)	Apr-Jul 05
Ore Production (000t)	**1,921**	**1,884**	**601**	**777**	**-23%**
Manpower	**4.73**	**6.17**	**6.67**	**4.87**	**37%**
Operations					
- Fuel	0.33	0.45	0.60	0.47	26%
- Explosives	0.98	0.97	1.05	1.45	-27%
- Water	0.25	0.27	0.30	0.23	32%
- Drilling	0.70	0.89	0.55	0.85	-35%
- Consumables	0.42	0.70	0.70	0.58	20%
- Stores & Spares	1.52	1.99	1.77	2.34	-24%
- Power	2.41	7.67	8.20	6.28	31%
- Contract Labour	0.27	0.96	0.33	0.73	-56%
Sub-total	**6.88**	**13.90**	**13.50**	**12.92**	**4%**
Repair & Maintenance					
- Stores & Spares	0.59	0.68	0.53	0.69	-24%

- Mechanical	0.27	-0.05	0.14	0.37	-63%
- Electrical	0.30	0.36	0.38	0.45	-16%
- Heavy Vehicles	2.17	2.10	2.50	1.77	41%
Sub-total	**3.33**	**3.08**	**3.54**	**3.28**	**8%**
Other Costs					
Operating Leases & Vehicle Hire	0.84	0.72	0.52	0.51	1%
Operating Projects	0.45	1.64	0.87	2.80	-69%
Others	0.98	-2.23	0.22	0.26	-12%
Sub-total	**2.26**	**0.12**	**1.61**	**3.57**	**-55%**
Total Mining Cost	**17.20**	**23.28**	**25.32**	**24.64**	**3%**

Table 3-11 Konkola Concentrator Operating Cost History

	2003	**2004**	**Apr-Jul 05**	**Apr-Jul 05**	**Variance**
	Actual ($/t)	**Actual ($/t)**	**Actual ($/t)**	**Budget ($/t)**	**Apr-Jul05**
Ore Production (000t)	**1,921**	**1,884**	**601**	**777**	**-23%**
Manpower	**0.76**	**0.89**	**1.18**	**0.85**	**39%**
Operations					
- Fuel	0.07	0.09	0.13	0.09	39%
- Chemicals	0.19	0.23	0.23	0.19	23%
- Mill Balls & Rod	0.24	0.33	0.28	0.32	-13%
- Water	0.04	0.05	0.04	0.03	54%
- Freight on Despatch of Conc.	0.00	0.00	0.44	0.53	-18%
- Consumables	0.20	0.25	0.31	0.26	16%
- Stores & Spares	0.40	0.98	1.22	0.55	122%
- Power	0.91	0.75	0.87	0.77	13%
- Contract Labour	0.01	0.00	0.04	0.01	285%
Sub-total	**2.06**	**2.68**	**3.55**	**2.75**	**29%**
Repair & Maintenance					
- Stores & Spares	0.28	0.46	0.63	0.24	161%
- Mechanical	0.61	0.24	0.29	0.17	73%
- Electrical	0.14	0.23	0.22	0.12	74%
- Heavy Vehicles	0.04	0.05	0.17	0.03	538%
Sub-total	**1.07**	**0.99**	**1.31**	**0.56**	**133%**
Other Costs					
Vehicle & Equipment Hire	0.00	0.00	0.00	0.00	
Operating Projects	0.63	0.64	0.12	0.14	-13%
Others	0.06	0.09	0.18	0.11	61%
Sub-total	**0.69**	**0.72**	**0.30**	**0.25**	**21%**
Total Concentrator Cost	**4.58**	**5.28**	**6.33**	**4.41**	**44%**

3.5.3.2 Factors Determining Operating Costs

IMC has developed forward projections for each operating cost category based on the following principles:

- The starting point for each cost item is actual costs for the period April to July 2005, KCM's LOM plan and or the KDMP FS
- These projections have been amended by IMC to take account of

- Unsupported deviations from international trends and performance
- IMC's view of changes or efficiency improvements that a buyer might believe it could implement taking account of international benchmarks
- Changes in the throughput/volume assumptions reflecting IMC's view of the split between fixed and variable cost

IMC's projections have been assessed in real August 2005 terms. However, there are some costs which may be affected by above inflationary trends and pressures.

Furthermore, although below we have provided an extended split of costs by currency we have not incorporated in our projections the potential impact of changes in real exchange rates.

Table 3-12 below shows the distribution of operating costs by currency based on history with the overall percentages of operating cost incurred or denominated in US$, kwacha and SA Rand shown graphically in Figure 3-7 below.

Table 3-12 Distribution Factors for Cost by Currency

	Proportion of Currency		
	US$	**Kwacha**	**Rand**
Manpower	20%	80%	
Ore purchase	80%	20%	
Fuel	90%	10%	
Explosives	70%	30%	
Water		100%	
Drilling	50%		50%
Chemicals	50%		50%
Mill Balls & Rod	70%		30%
Sulphuric acid	80%	20%	
Lime		50%	50%
Consumables	50%	20%	30%
Stores & Spares	60%	20%	20%
Power	100%		
Contract Labour		100%	
Freight for Concentrates		100%	
Stores & Spares	50%	20%	30%
Mechanical	50%	10%	40%
Electrical	50%	10%	40%
Heavy Vehicles	20%	50%	30%
Operating Leases & Vehicle Hire		80%	20%
Operating Projects	30%	30%	40%
Others	20%	50%	30%
Administration	20%	60%	20%

Table 3-13 and Table 3-14 show the absolute US$ level of each sub-category of mining and concentrator costs, together with the proportion estimated by IMC to be fixed. The balance (i.e. variable component) of the cost has been divided by the cost driver to achieve a specific cost per tonne of ore or concentrate. The estimates of fixed and variable cost proportions are based on an assessment of the individual functions within these costs. For example most of the power cost in the incurred underground operations goes into ventilation and dewatering which are both independent of the level of ore production, therefore a high proportion of the cost is fixed. Fuel cost for mobile equipment however is wholly dependent on production.

Table 3-13 Konkola Mining Costs Fixed and Variable Split

	Total Cost Apr-Jul 05 (M$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t ore)
Manpower	4.01	85%	3.4	1.00
Operations				
- Fuel	0.36			0.60
- Explosives	0.63			1.05
- Water	0.18			0.30
- Drilling	0.33			0.55
- Consumables	0.42	30%	0.13	0.49
- Stores & Spares	1.07	30%	0.32	1.24
- Power	4.93	75%	3.7	2.05
- Contract Labour	0.20			0.33
Repairs & Maintenance				
- Stores & Spares	0.32	30%	01	0.53
- Mechanical	0.08	30%	0.02	0.14
- Electrical	0.23	30%	0.07	0.38
- Heavy Vehicles	1.50	15%	0.23	2.50
Operating Leases & Vehicle Hire	0.31	50%	0.16	0.52
Operating Projects	0.52	50%	0.26	0.87
Others	0.14	50%	0.07	0.22
Total	**3.1**	**55%**	**6.16**	**5.16**

Table 3-14 Konkola Concentrator Costs Fixed and Variable Split

	Total Cost Apr-Jul 05 (M$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t ore)	Variable Cost ($/t conc)
Manpower	0.71	90%	0.64	0.12	
Operations					
- Fuel	0.08	90%	0.07	0.01	
- Chemicals	0.14			0.23	
- Mill Balls & Rod	0.17			0.28	
- Water	0.03			0.04	
- Freight for Concentrates	0.26				6.20
- Consumables	0.18	15%	0.03	0.26	
- Stores & Spares	0.74	30%	0.22	0.86	
- Power	0.52	15%	0.08	0.74	
- Contract Labour	0.02			0.04	
Repairs & Maintenance					
- Stores & Spares	0.38	30%	0.12	0.63	
- Mechanical	0.17	30%	0.05	0.29	
- Electrical	0.13	30%	0.04	0.22	
- Heavy Vehicles	0.10			0.17	
Vehicle & Equipment Hire					
Operating Projects	0.07			0.12	

Others	0.11	30%	0.3	0.18	
Total	**0.18**	**33%**	**1.25**	**0.3**	**6.20**

3.5.3.3 Operating Cost Projections

IMC has concentrated on developing the most likely projections for the 4 highest cost categories shown in Figure 3-4 above which accounted for 77% of the operating costs in the 4 month period just prior to the Valuation Date for each it has reviewed the KDMP FS projections to determine whether these reasonably reflect what a buyer in August 2005 might have adopted and, if not, made appropriate amendments.

It should be noted that IMC has used actual costs as a starting point where as the KCM LOM plan starts with Budget figures which had been unattained during the first 4 months of 2005-06 giving significant differences in the initial years for most of the cost groups considered below.

Power

The power supply agreement established with CEC in March 2000 for a 20 year period stipulated payment in US$ to be paid offshore to CEC in London. The payment has two components, an energy charge and a capacity charge, together with a bonus/penalty system.

The energy tariff was specified in US cents per kW hour and was split into a wholesale energy and a supplied energy component based on metered usage. In November 2000 these charge rates were fixed with a provision for indexing in subsequent years of the agreement based on US Producer Price Indices (PPI) for the three month prior to the start of the year.

- Wholesale energy tariff USc0.79 per kWh
- Supply energy tariff USc0.18 per kWh

Similarly, the capacity charge was split into a wholesale capacity and a connected capacity component based on the KCM system capacity less a monthly discount proportion depending on the peak demand. Like the energy tariff these charge rates were fixed in November 2000 with a provision for indexing to US PPI in subsequent years of the agreement.

- Wholesale capacity tariff US$8.92 per kW per month
- System capacity tariff US$2.41 per kW per month

By August 2005 these charges had been indexed to the following, an increase of 5.35% from the November 2000 tariffs.

- Energy tariff USc1.02 per kWh
- Capacity tariff US$11.94 per kW per month

In August 2005 power accounted for 32% of the mining and 14% of the concentrator operating costs at Konkola. Due to the physical expansion of the workings the power usage for mining were showing a rising trend in the three years prior to the Valuation Date. Power has a high fixed cost, dominated by pumping and ventilation in the mine, both of which operate continually. Conversely, power in the concentrator is mainly consumed by the crushing and milling circuits and is therefore throughput dependant.

In August 2005 approximately 240,000 m^3 of water was being pumped out of the mine each day. This was expected to increase to over 400,000 m^3 per day once KDMP was in production. The final pumping system envisaged by the KDMP FS would have a total installed power requirement of 92 MW and IMC considers that a buyer would project a ramp up in power usage to this level synchronised with, but leading, the KDMP development due to the need to lower the water levels prior to development of, and production from, the lower measures. We have projected electricity costs on this basis, as shown in Table 3-15 below.

Table 3-15 Power Projection Build Up From 2005-06 to 2009-10

		2005-06	2010-11	Comments
Pumping	GWh	381	609	1.6 factor for power increase due to KDMP
Other Mine	GWh	180	377	15% Increased power efficiency
Total Mine	GWh	561	986	
Concentrator	GWh	60	113	35% increased power efficiency with new concentrators
Total KDMP	GWh	621	1,100	1.62 times 2005
Peak demand chargeable	MW	77.1	133	95% Charge efficiency
Capacity cost	US$ M	11.05	19.1	
Energy cost	US$ M	6.33	11.2	
		17.38	**30.3**	

It should be noted that the IMC projected power demand and consequential cost once steady state mine production is achieved shown Table 3-15, is higher than that estimated in the KDMP FS and the KCM LOM at US$27.6 M, but we believe to be more realistic.

The KDMP FS showed the construction of the 950 m pump house extension in the early stages of the project so that pump installation and dewatering could commence in advance of development roadways being driven into the lower measures. IMC has therefore deferred the mine power increase forecast in the KDMP FS by 12 months to 2008/09 for the reasons detailed in Section 3.5.1.1 above.

It should be noted that power supply agreement stipulated payment in US$ and hence there are no exchange rate issues to address in a real terms cost projection. However, the existing agreement has a capacity limit of 250 MW which is adequate for KDMP but a supplementary agreement would be required if additional smelting capacity is to be accommodated, which is discussed in Section 5 below.

Table 3-16 below shows the annualised total power costs for the KDMP FS, KCM LOM and IMC projections.

Table 3-16 Power Cost Comparison at 6 Mtpa Steady State

	KDMP FS	KCM LOM	IMC	Difference IMC to KDMP FS	Difference IMC to LOM
Historical Average (US$ per tonne of ore)		6.94			
Annualised Power Cost (US$ per tonne of ore)					
2005-06		7.64	8.65		+1.02
2006-07		7.03	7.32		+0.28
2007-08	5.67	6.96	6.98	+1.31	+0.02
2008-09	4.60	6.14	6.56	+1.96	+0.42
2009-10	4.60	4.60	6.70	+2.09	+2.09

2010-11	4.60	4.60	4.60	0.00	0.00

Manpower

In August 2005, manpower accounted for 26% of the mining and 19% of the concentrator operating costs at Konkola. The mining and processing operations employed 3,066 people directly together with 658 contractors and trainees. They worked in 3 shifts. Average productivity over the two complete years and the four months prior to the Valuation Date was 601 tonnes of ore per man-year. Similar underground mines typically achieve productivity in the range of 800 to 1,500 tonnes per man-year, depending on the level of mechanisation and degree of sophistication of the operators. IMC believes Konkola's low productivity reflected the mining method, which was labour intensive, the configuration of the ore body with limited width, and the limited availability of working places due to lack of development.

IMC considers that a buyer of the business would believe that significant productivity improvements would be possible with the development of KDMP, the introduction of mechanised mining and appropriate training programmes. In determining what might be achievable it would, however, be necessary to consider the challenge of implementing an immediate significant step change given:

- the long enshrined labour intensive work practices;
- the need for "culture change" which can never be effected quickly; and
- the difficult and thin ore body configuration, and the limited life available at Konkola prior to the development of KDMP

Taking these factors into account, IMC believes a buyer would assume gradual improvements in which the increased production forecast in section 3.5.1 would be achieved with a reduced labour complement. History shows natural wastage of the order of 10% per annum over the 3 years prior to August 2005. With the future focus of the Company at KDMP, a programme of selective transfer and limited recruitment (below the level of natural wastage) with appropriate training should achieve the productivities shown in Table 3-17 below not withstanding the constraints we have identified.

Table 3-17 Manpower and Productivity Comparison at 6 Mtpa Steady State

	KDMP FS	IMC	Difference IMC to KDMP FS
Total Existing Manpower	3,724	3,724	-
Total Steady State Manpower	3,200	3,100	-100
Reduction Period (years)	3	4	+1
Average Annual Manpower Reduction (%)	4.9	4.5	-0.4
Productivity at 6 Mtpa (t per man year)	1,875	1,935	+60

The KDMP FS showed a 13.5% decline in manpower mainly through contractors over a three year period which gives a productivity of 1,875 tonnes ore per man-year, and comparable to industry standards for an efficient operator given the proposed mechanisation programme, the development of a thicker (but deeper) ore body and the lower development ratio required to maintain the availability of production stopes. However, IMC would expect a buyer to apply a more gradual reduction rate but extend it to a 4 year period and reduce the workforce by a total of 16.8% with the consequential productivity increase to 1,935 tonnes of ore per man-year. This may appear high in comparison with industry norms quoted earlier but would, in IMC's view, be viewed as achievable by a buyer who is an experienced mine operator.

Wage Rates

Prior to August 2005, KCM had conceded annual labour wage rises significantly in excess of domestic inflation which is shown in Table 3-18 below.

Table 3-18 Labour Wage Settlement History

Year	Nominal Increase (%)	Kwacha Inflation Rate(%)	Real Increase (%)
2002-03	11.5	22.0	10
2003-4	41	17.3	22
2004-5	19.5	18.2	1
2005-06 Expected	30	15	13

In August 2005 the Company was in the process of negotiating a new pay deal. The unions were demanding an increase of the order of 40% while management had offered under 20%. IMC understands that the parties were close to settling on or around 30% during August but that a second round of negotiations had been planned. In IMC's view the likely outcome of this second round would, as viewed by an outside party in mid-August 2005, have been in line with where the parties appeared to be heading at the end of the first round namely 30% in nominal terms or 13% in real terms principally on the basis of the strength of the copper price at the time.

Labour rates going forward would to some extent be driven by the copper price and the resulting profitability of the business as perceived by the unions and the workforce and also the bargaining leverage which labour may enjoy as a result of an ability to threaten the implementation timetable of KDMP. Underlying IMC's assumptions is the long term copper price forecast that Rothschild is using in its valuation, which assumes prices declining from the August 2005 spot price to a constant real US$1 per lb from 2009/10 onwards. At that time KCM would be dominated by production from KDMP with the future and jobs secured to 2035. KDMP FS shows a real terms increase in labour costs per man of 62%, compared with 2005, with constant labour complement, spread over the period until the 6 Mtpa plateau is reached and no increases thereafter. Whereas, IMC has projected a 15% real terms increase spread over four years to 2009-10 as KDMP production is being established.

Table 3-19 below shows the effects of the IMC labour cost projections compared with the KCM LOM projections, which reflect the delayed construction and production ramp-up from Section 3.5.1 above.

Table 3-19 Manpower Cost Comparison up to 6 Mtpa Steady State

	KCM LOM	IMC	Difference IMC to KDMP FS
Annualised Labour Cost Increase (%)			
2006-07	10	5	-5
2007-08	10	4	-6

2008-09	5	3	-2
2009-10	0	2	+2
2010-11	0	0	

IMC has estimated that the fixed element of manpower costs accounts for 85% of the mining and 90% of the concentrator costs with the balancing variable cost funding incentive and bonus schemes. We believe that a buyer would incorporate as much of the annual increases as possible into these variable productivity related schemes in order to make the increases self financing but would not expect a buyer to take a markedly different view of the evolving and eventual equilibrium level, of wages from those described above.

Stores and Spares

In August 2005 stores and spares accounted for 29% of the concentrator and 9% of the mine operating costs at Konkola, where for a number of years the concentrator had been working with little design upgrade and a limited capital replacement programme, and the mine had mainly manual production methods supported by limited infrastructure and locomotives rather than a belt system. The average historical stores and spares cost for the mine and concentrator as a whole for over the two years and four month prior to the Valuation Date was US$3.68 per tonne of ore, which is about 10% higher than a comparable modern operation.

Both the KDMP FS and the Enhancement Feasibility study acknowledged that the existing concentrator needed capital works and was to be uprated from 2.4 to 3.0 Mpta and that this would have operational cost benefits. IMC believes that a buyer would include the effects of this capital investment into its valuation by reducing the stores and spares cost of the concentrator, for the interim period from 2007-08 to steady state in 2010-11, to 50% of the 2005-06 levels, unlike the KDMP FS and KCM LOM which keep these cost the same. In addition, the new build 3 Mtpa concentrator module planned as part of the KDMP would operate with industry standard efficiency and costs, particularly with respect to stores and spares, representing a further reduction in cost.

As it is proposed to mechanise the mining operations of the KDMP so there would be a fleet of drills, loaders, haulers and auxiliary equipment, which did not form part of the August 2005 operations, to be maintained with stores and spares. IMC would expect a buyer and mine operator to implement a comprehensive planned preventative maintenance scheme to operate the new fleet efficiently with at least 90% availability. This would have resulted in the additional stores and spares costs. Table 3-20 below shows the net impact of this approach to the stores and spares costs as reflected in the KDMP FS and on IMC expectations of a buyer perspective.

Table 3-20 Stores and Spares Cost Comparison up to 6 Mtpa Steady State

	KDMP FS	KCM LOM	IMC	Difference IMC to KDMP FS	Difference IMC to LOM
Historical Average (US$ per tonne of ore)	3.68				
Annualised Stores and Spares Cost (US$ per tonne of ore)					
2005-06		4.25	4.31		+0.06
2006-07		3.79	4.15		+0.36
2007-08	3.46	3.67	3.16	-0.30	-0.51
2008-09	3.11	4.15	3.09	-0.02	-1.06
2009-10	3.11	3.11	3.50	+0.39	+0.39

2010-11	3.11	3.11	3.11	0.00	0.00

It should be noted that 30% of the stores and spares costs are estimated as fixed costs leaving a high variable cost which is mainly incurred in US$ or SA Rand, so differential inflation and changes in the real Kwacha exchange rate should not significantly influence these costs in US$ terms.

Consumables

This category includes fuel, explosives, water, drilling, chemicals and mill balls and rod and in August 2005 accounted for 13% of the mine operating costs and 15% of the concentrator costs at Konkola. These costs are largely variable and would be expected to follow the same profile as production, discussed in Section 3.5.1 above.

The average historical consumables cost for the mine and concentrator as a whole over the two years and four month prior to the Valuation Date was US$3.95 per tonne of ore, which was about 10% higher than a comparable modern operation.

Both the KDMP FS and the Enhancement Feasibility study envisaged that the concentrator would be upgraded and the mine mechanised. However, consumables consumption rates per tonne of ore could go up as well as down as a result of this. For example, the KDMP FS shows the rate per tonne of mill balls and rod usage significantly lower than at present due to the new mill installations, but underground drilling and water usage increasing due to the change in mining method. Table 3-21 below shows the overall impact on consumables costs envisaged by the KDMP FS and IMC expectations of a buyer's perspective. Other variances can be attributed to the different projection compilation methods commented on above.

Table 3-21 Consumable Cost Comparison up to 6 Mtpa Steady State

	KDMP FS	KCM LOM	IMC	Difference IMC to KDMP FS	Difference IMC to LOM
Historical Average (US$ per tonne of ore)	3.95				
Annualised Other Consumables Cost (US$ per tonne of ore)					
2005-06		5.71	4.16		-1.55
2006-07		5.15	4.08		-1.06
2007-08	5.26	5.06	4.06	-1.20	-1.00
2008-09	5.01	6.18	4.04	-0.97	-2.14
2009-10	5.01	4.63	5.21	+0.21	+0.58
2010-11	5.01	4.63	4.63	-0.37	0.00

It should be noted that, with the small exception of water which is purchased in Kwacha consumable costs would mainly be incurred in US$ or SA Rand, so differential inflation and changes in the real Kwacha exchange rate should not significantly influence these costs in US$ terms.

Repairs and Renewals

In August 2005 repairs and renewals other the related stores and spare, which were considered above, accounted for 12% of the mine operating costs and 11% of the concentrator costs at Konkola. The majority of this group of costs has an estimated 30% fixed element and with the KDMP new mining and concentrator equipment programme would be expected to show a similar forecast profile as stores and spares.

The average historical stores and spares cost for the mine and concentrator as a whole for over the two years and four month prior to the Valuation Date was US$3.39 per tonne of ore, which is about 10% higher that a comparable modern operation. Table 3-22 below shows the overall impact on consumables costs envisaged by the KDMP FS and IMC's expectations as to a buyer's perspective. Other variances can be attributed to the different projection compilation methods commented on above.

Table 3-22 Repairs and Renewals: Cost Comparison up to 6 Mtpa Steady State

	KDMP FS	KCM LOM	IMC	Difference IMC to KDMP FS	Difference IMC to LOM
Historical Average (US$ per tonne of ore)	3.39				
Annualised Repairs and Renewals Cost (US$ per tonne of ore)					
2005-06		3.46	4.04		+0.58
2006-07		2.82	4.10		+1.28
2007-08	2.60	2.52	3.68	+1.08	+1.15
2008-09	2.12	2.82	3.64	+1.53	+0.82
2009-10	2.12	2.12	2.38	+0.26	+0.26
2010-11	2.12	2.12	2.12	0.00	0.00

Total Operating Costs

Table 3-23 below shows IMC's projections of total operating costs, incorporating the projected profiles from the individual cost groups above and, compares these with the KDMP FS projections. However, Once steady state production is achieved in 2010-11 a buyer could consider an upside sensitivity by including additional small savings for a limited period as operational efficiencies improve through experience with the KDMP plant and equipment.

Table 3-23 Total Operational Cost Comparison up to 6 Mtpa Steady State

	KDMP FS	KCM LOM	IMC	Difference IMC to KDMP FS	Difference IMC to LOM
Historical Average (US$ per tonne of ore)	33.76				
Annualised Operational Cost (US$ per tonne of ore)					
2005-06		39.30	37.41		-1.89
2006-07		34.58	33.86		-0.71
2007-08	27.86	33.92	31.70	+3.84	-2.21

2008-09	24.70	33.61	30.46	+5.76	-3.16
2009-10	24.70	25.21	29.63	+4.93	+4.42
2010-11	24.70	25.21	24.19	-0.51	-1.02

Table 3-24 below shows the first seven years of the KDMP FS, KCM LOM and IMC's operating cost projections and covers the critical construction and ramp up period; whilst Table 3-25 shows the steady state period up to year 15 together with the final year and totals. Both tables show the variances between the IMC and KDMP FS and KCM LOM projections for the main cost groups used above.

Table 3-24 Konkola Operational Cost Projection Comparison, Years 1 to 7

		0			1	2	3	4	5	6	7
		2005	Aug 05-Mar 06	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
		Actual	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
KDMP FS Projections											
Mine	M$					99.4	116.6	116.6	116.6	116.6	116.6
Manpower	M$					22.0	28.0	28.0	28.0	28.0	28.0
Fuel	M$					2.6	3.5	3.5	3.5	3.5	3.5
Power	M$					22.8	24.3	24.3	24.3	24.3	24.3
Other consum	M$					31.2	38.6	38.6	38.6	38.6	38.6
Rep & Maint	M$					13.6	14.5	14.5	14.5	14.5	14.5
Other cost	M$					7.2	7.8	7.8	7.8	7.8	7.8
Concentrator	M$					14.1	18.8	18.8	18.8	18.8	18.8
Manpower	M$					2.8	3.8	3.8	3.8	3.8	3.8
Power	M$					2.7	3.3	3.3	3.3	3.3	3.3
Other consum	M$					4.5	6.1	6.1	6.1	6.1	6.1
Repair & Maint	M$					1.6	2.1	2.1	2.1	2.1	2.1
Other cost	M$					2.5	3.5	3.5	3.5	3.5	3.5
Administration	M$					11.9	12.8	12.8	12.8	12.8	12.8
Manpower	M$					4.4	4.4	4.4	4.4	4.4	4.4
Other	M$					7.5	8.4	8.4	8.4	8.4	8.4
Total Cost	M$					**125.4**	**148.2**	**148.2**	**148.2**	**148.2**	**148.2**
Total Cost	$/t					27.9	24.7	24.7	24.7	24.7	24.7
KCM LOM Projections											
Mine	M$			63.3	69.2	76.7	112.1	112.1	112.1	112.1	112.1
Manpower	M$			15.4	16.9	18.6	23.5	23.5	23.5	23.5	23.5
Fuel	M$			1.3	1.6	1.7	3.5	3.5	3.5	3.5	3.5
Power	M$			14.8	17.0	19.0	24.3	24.3	24.3	24.3	24.3
Other consum	M$			17.6	19.5	21.3	38.6	38.6	38.6	38.6	38.6
Rep & Maint	M$			8.9	8.9	8.9	14.5	14.5	14.5	14.5	14.5
Other cost	M$			5.3	5.3	7.2	7.8	7.8	7.8	7.8	7.8
Concentrator	M$			10.0	10.4	10.9	19.2	19.2	19.2	19.2	19.2
Manpower	M$			2.7	3.0	3.3	4.2	4.2	4.2	4.2	4.2
Power	M$			1.9	1.9	1.9	3.3	3.3	3.3	3.3	3.3
Other consum	M$			2.8	2.9	3.1	6.1	6.1	6.1	6.1	6.1
Repair & Maint	M$			1.0	1.0	1.0	2.1	2.1	2.1	2.1	2.1
Other cost	M$			1.6	1.6	1.6	3.5	3.5	3.5	3.5	3.5
Administration	M$			12.6	13.4	14.2	19.9	19.9	19.9	19.9	19.9
Manpower	M$			7.6	8.4	9.2	11.6	11.6	11.6	11.6	11.6
Other	M$			5.0	5.0	5.0	8.4	8.4	8.4	8.4	8.4
Total Cost	M$			**85.9**	**93.0**	**101.7**	**151.2**	**151.2**	**151.2**	**151.2**	**151.2**
Total Cost	$/t			39.3	34.6	33.9	33.6	25.2	25.2	25.2	25.2
IMC Projections											
Mine	M$	15.2	33.7	48.9	57.7	60.8	65.1	91.3	112.1	112.1	112.1
Manpower	M$	4.0	8.2	12.2	13.4	14.1	14.9	18.8	23.5	23.5	23.5

		0			1	2	3	4	5	6	7
		2005	Aug 05-Mar 06	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
		Actual	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
Fuel	M$	0.4	0.8	1.2	1.5	1.6	1.8	2.6	3.5	3.5	3.5
Power	M$	4.9	10.1	15.0	16.2	16.6	17.2	24.3	24.3	24.3	24.3
Other consum	M$	2.8	6.2	9.0	11.2	12.0	13.2	28.9	38.6	38.6	38.6
Rep & Maint	M$	2.1	5.4	7.5	9.9	10.6	11.6	10.9	14.5	14.5	14.5
Other cost	M$	1.0	3.1	4.1	5.5	5.8	6.3	5.8	7.8	7.8	7.8
Concentrator	M$	3.8	8.7	12.5	15.5	13.0	14.1	14.3	19.1	19.1	19.1
Manpower	M$	0.7	1.4	2.1	2.3	2.4	2.5	3.3	4.2	4.2	4.2
Power	M$	0.5	1.1	1.7	2.1	2.2	2.4	2.5	3.3	3.3	3.3
Other consum	M$	1.6	3.5	5.1	6.4	5.3	5.8	6.3	8.7	8.7	8.7
Repair & Maint	M$	0.8	2.1	2.9	3.9	2.1	2.3	1.6	2.1	2.1	2.1
Other cost	M$	0.2	0.5	0.6	0.8	0.9	1.0	0.6	0.8	0.8	0.8
Administration	M$	3.5	7.3	10.8	11.5	11.9	12.2	12.9	13.9	13.9	13.9
Manpower	M$	2.2	4.4	6.7	7.1	7.4	7.7	8.1	8.5	8.5	8.5
Other	M$	1.3	2.8	4.1	4.4	4.4	4.5	4.8	5.4	5.4	5.4
Total Cost	M$	**22.5**	**49.6**	**72.2**	**84.7**	**85.6**	**91.4**	**118.5**	**145.1**	**145.1**	**145.1**
Total Cost	$/t	37.51	37.37	37.4	33.9	31.7	30.5	29.6	24.2	24.2	24.2
Variance IMC to KDMP FS Projections											
Mine	M$					-38.6	-51.6	-25.3	-4.5	-4.5	-4.5
Manpower	M$					-7.9	-13.1	-9.2	-4.5	-4.5	-4.5
Fuel	M$					-1.0	-1.7	-0.9			
Power	M$					-6.2	-7.1				
Other consum	M$					-19.2	-25.4	-9.6			
Rep & Maint	M$					-3.0	-2.9	-3.6			
Other cost	M$					-1.4	-1.5	-1.9			
Concentrator	M$					-1.1	-4.7	-4.5	0.3	0.3	0.3
Manpower	M$					-0.3	-1.2	-0.4	0.4	0.4	0.4
Power	M$					-0.5	-0.9	-0.8			
Other consum	M$					0.8	-0.3	0.2	2.6	2.6	2.6
Repair & Maint	M$					0.5	0.2	-0.5			
Other cost	M$					-1.6	-2.5	-2.9	-2.7	-2.7	-2.7
Administration	M$					-0.1	-0.5	0.1	1.1	1.1	1.1
Manpower	M$					3.0	3.3	3.7	4.1	4.1	4.1
Other	M$					-3.1	-3.8	-3.5	-2.9	-2.9	-2.9
Total Cost	M$					**-39.8**	**-56.8**	**-29.7**	**-3.1**	**-3.1**	**-3.1**
Total Cost	$/t					3.84	5.76	4.93	-0.51	-0.51	-0.51
Variance IMC to KCM LOM Projections											
Mine	M$	N/A	N/A	-14.4	-11.5	-15.9	-47.1	-20.8			
Manpower	M$	N/A	N/A	-3.2	-3.6	-4.5	-8.6	-4.7			
Fuel	M$	N/A	N/A	-0.2	-0.1	-0.1	-1.7	-0.9			
Power	M$	N/A	N/A	0.2	-0.8	-2.4	-7.1				
Other consum	M$	N/A	N/A	-8.6	-8.3	-9.3	-25.4	-9.6			
Rep & Maint	M$	N/A	N/A	-1.3	1.0	1.7	-2.9	-3.6			

		0			1	2	3	4	5	6	7
		2005	Aug 05-Mar 06	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
		Actual	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
Other cost	M$	N/A	N/A	-1.3	0.1	-1.4	-1.5	-1.9			
Concentrator	M$	N/A	N/A	2.5	5.1	2.1	-5.1	-4.9	-0.1	-0.1	-0.1
Manpower	M$	N/A	N/A	-0.6	-0.7	-0.9	-1.6	-0.8			
Power	M$	N/A	N/A	-0.2	0.2	0.3	-0.9	-0.8			
Other consum	M$	N/A	N/A	2.3	3.5	2.2	-0.3	0.2	2.6	2.6	2.6
Repair & Maint	M$	N/A	N/A	2.0	2.9	1.1	0.2	-0.5			
Other cost	M$	N/A	N/A	-0.9	-0.7	-0.7	-2.5	-2.9	-2.7	-2.7	-2.7
Administration	M$	N/A	N/A	-1.8	-1.9	-2.3	-7.7	-7.0	-6.0	-6.0	-6.0
Manpower	M$	N/A	N/A	-0.9	-1.2	-1.8	-3.9	-3.5	-3.1	-3.1	-3.1
Other	M$	N/A	N/A	-0.9	-0.6	-0.6	-3.8	-3.5	-2.9	-2.9	-2.9
Total Cost	M$	N/A	N/A	**-13.7**	**-8.3**	**-16.1**	**-59.9**	**-32.7**	**-6.1**	**-6.1**	**-6.1**
Total Cost	$/t	N/A	N/A	-1.9	-0.7	-2.2	-3.2	4.4	-1.0	-1.0	-1.0

Table 3-25 Konkola Operational Cost Projection Comparison, Years 8 to 15 and 29

		8	9	10	11	12	13	14	15	29	Total
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2034-35	
		Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Projection
KDMP FS Projections											
Mine	M$	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	3,248.9
Manpower	M$	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	778.0
Fuel	M$	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	96.0
Power	M$	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	678.8
Other consum	M$	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	1,072.9
Rep & Maint	M$	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	405.9
Other cost	M$	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	217.2
Concentrator	M$	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	521.0
Manpower	M$	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	104.1
Power	M$	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	92.5
Other consum	M$	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	170.0
Repair & Maint	M$	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	58.6
Other cost	M$	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	95.8
Administration	M$	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	357.0
Manpower	M$	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	123.6
Other	M$	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	233.3
Total Cost	M$	**148.2**	**148.2**	**148.2**	**148.2**	**148.2**	**148.2**	**148.2**	**148.2**	**148.2**	**4,126.8**
Total Cost	$/t	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	29.6	24.3
KCM LOM Projections											
Mine	M$	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	3,236.4
Manpower	M$	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	684.7
Fuel	M$	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	98.1
Power	M$	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	706.8
Other consum	M$	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	1,100.1
Rep & Maint	M$	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	418.8
Other cost	M$	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	227.9
Concentrator	M$	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	549.2
Manpower	M$	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	121.3
Power	M$	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	95.5
Other consum	M$	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	174.3
Repair & Maint	M$	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	60.0
Other cost	M$	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	98.0
Administration	M$	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	578.8
Manpower	M$	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	337.8
Other	M$	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	240.9
Total Cost	M$	**151.2**	**151.2**	**151.2**	**151.2**	**151.2**	**151.2**	**151.2**	**151.2**	**151.2**	**4,364.3**
Total Cost	$/t	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	25.2	26.1
IMC Projections											
Mine	M$	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	112.1	3126.8
Manpower	M$	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	660.1
Fuel	M$	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	95.2

		8	9	10	11	12	13	14	15	29	Total
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2034-35	
		Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Projection
Power	M$	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	696.9
Other consum	M$	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	1038.9
Rep & Maint	M$	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	413.7
Other cost	M$	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	222.0
Concentrator	M$	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.2	19.3	551.3
Manpower	M$	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	116.7
Power	M$	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	94.1
Other consum	M$	8.7	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.9	252.1
Repair & Maint	M$	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	65.6
Other cost	M$	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	22.8
Administration	M$	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	407.5
Manpower	M$	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	249.6
Other	M$	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	157.9
Total Cost	M$	**145.1**	**145.2**	**145.2**	**145.2**	**145.2**	**145.2**	**145.2**	**145.2**	**145.4**	**4,085.6**
Total Cost	$/t	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.9
Variance IMC to KDMP FS Projections											
Mine	M$	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-122.10
Manpower	M$	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-117.88
Fuel	M$										-0.87
Power	M$										18.04
Other consum	M$										-33.98
Rep & Maint	M$										7.85
Other cost	M$										4.74
Concentrator	M$	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	30.30
Manpower	M$	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	12.66
Power	M$										1.53
Other consum	M$	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8	82.07
Repair & Maint	M$										6.97
Other cost	M$	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-72.93
Administration	M$	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	50.53
Manpower	M$	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	125.99
Other	M$	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-75.47
Total Cost	M$	**-3.1**	**-3.0**	**-3.0**	**-3.0**	**-3.0**	**-3.0**	**-3.0**	**-3.0**	**-2.9**	-41.27
Total Cost	$/t	-0.51	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50	-0.49	-5.42	24.89
Variance IMC to KCM LOM Projections											
Mine	M$										-109.6
Manpower	M$										-24.6
Fuel	M$										-2.9
Power	M$										-10.0
Other consum	M$										-61.1
Rep & Maint	M$										-5.1
Other cost	M$										-5.9
Concentrator	M$	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2
Manpower	M$										-4.6

		8	9	10	11	12	13	14	15	29	Total
		2013-14	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2034-35**	
		Proj	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Projection**
Power	M$										-1.4
Other consum	M$	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8	77.7
Repair & Maint	M$										5.6
Other cost	M$	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-75.2
Administration	M$	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0	-171.3
Manpower	M$	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-88.2
Other	M$	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-83.0
Total Cost	M$	**-6.1**	**-6.1**	**-6.1**	**-6.1**	**-6.1**	**-6.1**	**-6.1**	**-6.0**	**-5.9**	**-278.8**
Total Cost	$/t	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.2

Figure 3-5 below shows pictorially the overall operating cost per tonne of ore and the production profile during the initial stages of KDMP until steady state is achieved and Figure 3-6 demonstrates how the costs are broken down into the three cost centres.

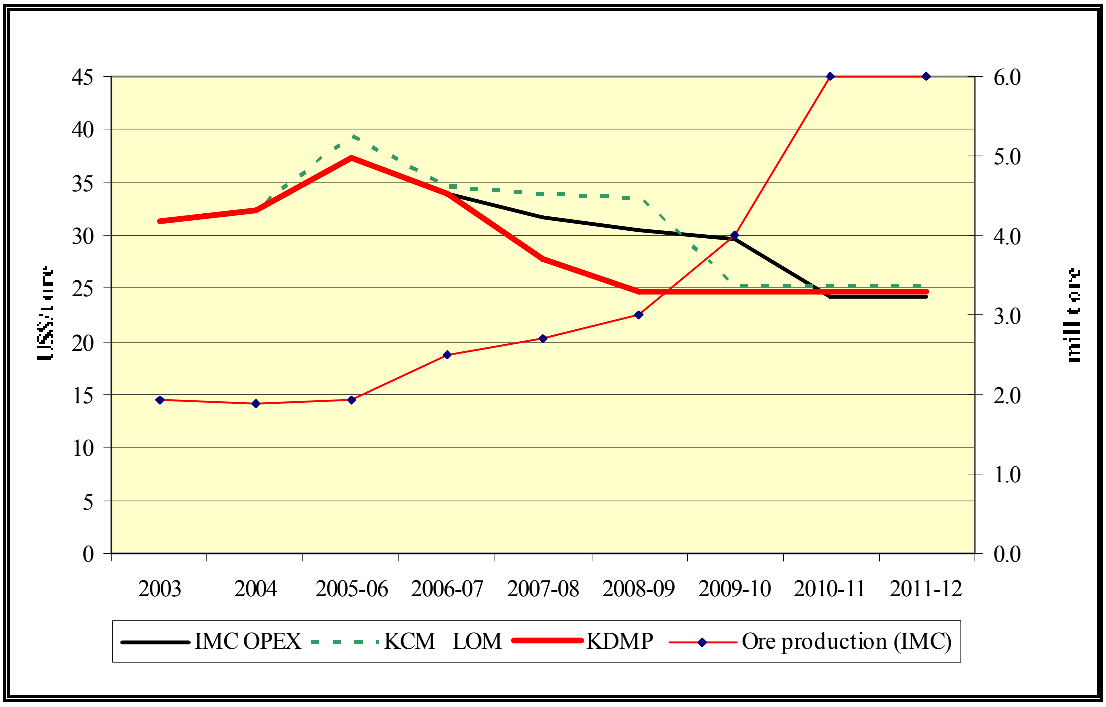


Figure 3-5 Konkola Overall Actual and Projected Operating Cost and Production

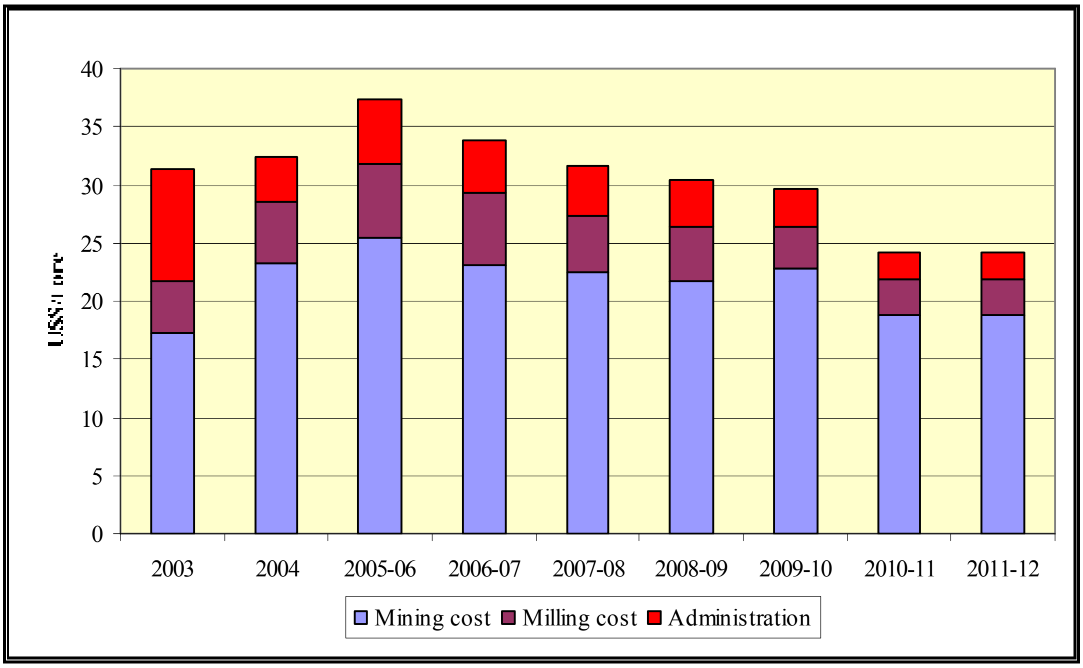


Figure 3-6 Konkola Actual and Projected Operating Cost by Cost Centre

The results of the calculation of cost by currency based on the parameters shown in Table 3-12 is shown in Figure 3-7. The costs in Kwacha account for approx 40% of the total cost due to the high proportion of labour costs.

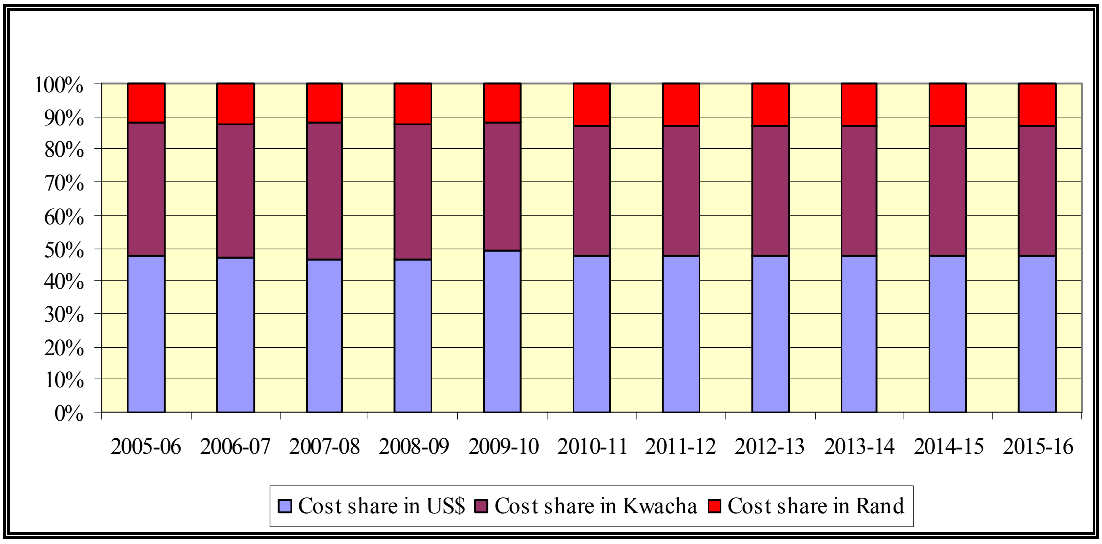


Figure 3-7 Konkola Operating Cost by Currency

3.5.4 Capital Expenditure

Other cash expenses that were directly allocated to Konkola comprise capital expenditures and environmental operational and remediation costs.

3.5.4.1 Sustaining Capital

Table 3-26 below shows the additional capital assets purchased or developed for the two years and four month prior to the Valuation Date. Since no expansion or development projects were underway during this period the improvements to land and buildings, mine property and leases as well as mining and concentrator replacement equipment would all be classified as sustaining capital.

Table 3-26 Konkola Additions to assets 2003 to July 2005

	2003 (US$ M)	2004 (US$ M)	2005 1st 4 Months (US M$)
Land and Buildings	0.06	1.7	1.0
Mine Property and Leases	4.7	12.6	9.9
Computer Equipment	0	0	0.1
Furniture & Fittings	0	0	0
Motor vehicles	0	0	0
Plant & Machinery	7.9	7.7	7.7
Total	**12.6**	**22.0**	**18.7**

KCM normally accounted for its strategic underground roadway development drivage as part of operating costs which was capitalised at year end. IMC could not establish whether the sustaining capital expenditure recorded for the four months of 2005 prior to the Valuation Date contained the strategic development costs, or whether some was still allocated to operating cost.

Table 3-27 below shows the annual sustaining capital projections from the KDMP FS compared with the projections IMC would expect a buyer in August 2005 to include in its Company valuation. During the construction period we would have expected the majority of the annual capital spend to have been incorporated into the major project, after which it would revert to a base of US$10 M and subsequently increase to US$15 M from 2016 as the plant and equipment requires replacement in accordance with an industry standard 5 year cycle. KDMP has stretched this period to 10 years which would be likely incur deteriorating efficiencies, higher maintenance costs and ultimately greater capital costs for wholesale replacement

Table 3-27 Konkola Annual Sustaining Capital Comparison

	KDMP FS (US$ Mpa)	IMC (US$ Mpa)	Difference IMC to KDMP FS (US$ Mpa)
2006-11	10	5	-5
2011-16	10	10	
2016-22	10	15	+5
2022 onwards	20	15	-5

3.5.4.2 Project Capital

Table 3-28 shows a summary of the capital expenditure from the KDMP FS which totals USD357 M. The feasibility study was undertaken initially by Anglo American, updated by Vedanta. IMC has cross checked individual cost items using IMC's historical knowledge of similar projects planned in 2005, backed up by proprietary data base costings. This verification involved sample checking of unit rates for major items like the various shaft sinks, cost model verification of the concentrator and the percentages used to calculate the spares, contingency and EPCM components of the schedule.

Table 3-28 KDMP FS Capital Expenditure Schedule

Item	Base Cost (US$ M)	Spares (US$ M)	Contingency (US$ M)	EPCM (US$ M)	Final Cost (US$ M)
No 4 shaft	31.3	0.4	4.7	3.7	40.2
1390 m Pump Chamber	20.0	1.2	3.0	2.4	26.7
Mobile Equipment	31.6	1.6	0	0	33.2
Mine Development	23.4	0	3.5	0	26.9
Concentrator	55.2	0	8.3	6.6	70.1
Total	**291**	**4.6**	**38.8**	**23.2**	**357**
		2%	13%	8%	

Those costings quoted in the KDMP FS which were checked by IMC were in line with expected 2005 values or within the estimation ranges that would be expected for a feasibility study of a project of this type, scope and size. Accordingly, IMC has not altered, nor would have expected a valuing buyer to alter, any individual cost items or the total capital values in the KDMP FS projections. However, IMC has deferred the expenditure schedule in line with the delayed construction period described in Section 3.5.1 as shown in Table 3-29 below.

Table 3-29 KDMP Capital Phasing Comparison

	0	1	2	3	4	5	6	7
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
KDMP FS Projections								
KDMP (US$ M)			105	120	85	47		
IMC operational Plan Projections								
KDMP (US$ M)			20	85	120	85	47	
Variance								
KDMP (US$ M)			-85	-35	+35	+38	+47	

3.5.5 Environmental Costs

3.5.5.1 Current Non- Compliance

Section 3.3.6 identified certain environmental non-compliance issues at Konkola, mainly associated with water management and discharge, which would have been current in August 2005. The cost of rectifying these problems is not significant and IMC has estimated it at approximately US$3 M spread this cost over a three year period from 2008 to 2011, with a small on-going annual commitment thereafter, within its valuation.

3.5.5.2 Closure and Remediation

Environmental remediation costs post closure of Konkola were not identified separately in the KDMP FS. They could have been considered as a sustaining capital item although this is unclear. The KCM LOM plan showed US$7.3 M to be committed after 2034-35. Table 3-30 below shows IMC's cost estimate for a complete ongoing rehabilitation programme, to World Bank and EU standards, with total ongoing costs relating to closure of US$10.5 M, which we have phased through the pre and post closure periods. IMC would have expected a responsible buyer to adopt a similar approach and make similar provisions within its valuation.

Table 3-30 Konkola Progressive Rehabilitation, Decommissioning and Closure Costs

Area	Total (US$ M)
Underground Mining	2.0
Waste Rock Dumps	0.1
Plant Area Buildings and Services	5.1
Tailings Facilities	2.8
Total	**10.0**
Ongoing Monitoring	0.5
Grand Total	**10.5**

3.5.6 Upside Potential

3.5.6.1 Concentrator Module

IMC has evaluated the potential, in section 3.5.2.1 above, of installing a completely new 6 Mtpa concentrator as part of KDMP but concluded that there was no material long term gain for a buyer to include in its valuation and we have therefore not considered it further.

3.5.6.2 Mining and Processing Improvements

At the Valuation Date IMC would have considered that any minor economic improvements to the processing operations at Konkola would have already been incorporated into the Enhancement Feasibility study or the new plant design leaving minimal upside potential. Similarly, we would have expected the KDMP FS to have included any mining upside potential envisaged at the time.

3.5.6.3 Konkola North Mine

Section 2.6.4 above describes the abandoned Konkola North mine at No 2 shaft and considered how the mine potential could be reassessed against a background of current mechanised mining practices and an aggressive copper price forecast. No 2 shaft could only operate as a moderate sized operation on its own without investment in another production shaft. The owner therefore had the choice of either developing this orebody as a standalone project and sinking its own shaft or seeking to exploit it some time in the future in conjunction with KCM, using KCM's No 3 shaft in conjunction with No 2 shaft to form a mine working the northern extension of the Konkola orebody.

A Konkola North mine operating from Nos 2 and 3 shafts could be envisaged based on the following parameters:

- Resources 100 Mt at and average 2% TCu (60% of KDMP)
- Production 4 Mtpa based on shaft capacity and development ratio with an uncertain orebody

- Processing — Using existing Konkola capacity or a new build concentrator
- Operating costs — Approximately US$25 per tonne of ore (based on KDMP)
- Capital cost — US$250 M (based on KDMP) without extensive ore shaft construction but significant strategic drivage and exploration
- Phasing

Timing	Activity
2010 to 12	De-water, Exploration and Pre feasibility study
2012 to 14	Feasibility study
2014 to 17	Shaft interconnection and construction
2017	No 3 shaft available
2017 to 20	Strategic development
2020 to 23	Ramp up production
2024 to 2048	Steady State Production

IMC understands that Teal Exploration and Mining Incorporate, the current owners of Konkola North, are undertaking a feasibility study for a standalone mining operation based on accessing the south limb from the existing shaft and ventilation system and the east limb of the resource by means of new twin decline shafts. We would expect the study to come to roughly similar conclusions as KDMP FS, in terms of, production and processing capacity (6 Mtpa) as well as capital (US$400 M) and operating costs. The decision between joint venture and standalone would, in IMC's view, focus on a production capacity and capital cost trade off. While conceptually there may be some advantages, the significant time constraints this would place on the Konkola North development suggests that the owner may forego these in favour of an earlier standalone development. While it is possible some benefits could be picked up subsequently through integration these are not likely to be that significant and given the uncertainty on amount, timing and realisation, we would not see any merits in incorporating then in a valuation.

4 NCHANGA BUSINESS UNIT

4.1 Geological Characteristics

4.1.1 Nchanga Deposit

Regional structure at Nchanga is dominated by a series of three asymmetrical synclines. The Nchanga syncline is the largest and hosts on its southern limb the following mines along a strike distance of 45 km:

- Nchanga Underground Mine;
- Nchanga Open Pit Mine (NOP);
- Block A Open Pit;
- Chingola B Open Pit;
- Chingola C Open Pit;
- Chingola F Open Pit; and
- Chingola D Open Pit.

Copper mineralisation is zoned, with shallower oxidation and supergene mineralisation (chalcocite, malachite and cuprite and less common native copper, chrysocolla and azurite) giving way to primary chalcopyrite, bornite, and chalcocite with pyrite developed below. In most orebodies average grades are fairly consistent over large areas. In the so-called Chingola Refractory Ore (CRO), low-grade copper oxide mineralisation occurs within the crystal lattice of micas and between the mica plates. This material has not proved amenable to processing using conventional technologies.

Primary mineralisation is hosted within two stratigraphic horizons

- the Lower Ore Body (LOB)
- the Upper Ore Body (UOB)

The LOB ranges from a few metres to up to 40 m in thickness and is essentially unfolded and is separated from the UOB by a bedding parallel thrust plane. It can be traced in the NOP over distances in excess of 6km and dips 25° northward for most of its strike length. In the area of the current underground workings, it has been identified to a vertical depth of 900 m. However, it rapidly thins down-dip due to the development of arenaceous facies within the LOB, which limits the future potential of the mine. The LOB is hosted primarily in the Lower Banded Shale and Transition Arkose and has an assay footwall, which may extend into the stratigraphic unit below. Mineralisation in the Transition Arkose is “nuggety” making grade estimations challenging. Overall the LOB contains average in situ grades from 3% to 5%TCu.

The UOB is some 30 m to 40 m stratigraphically above the LOB and lies within the Feldspathic Quartzite and to a lesser extent in the Upper Banded Shale. It is 10 m to 40 m thick on average and in places is deformed by tight isoclinal folding. The UOB contains from 2%TCu to 3%TCu and has been traced for over 5 km along strike to a depth of 600 m. Cobalt mineralisation with grades of up to 0.7%TCo occurs within the UOB primarily in the Feldspathic Quartzite (“TFQ”) with an assay hanging wall that extends into the overlying Upper Banded Shale.

Economic mineralisation is occasionally found between these two main orebodies. primarily in discontinuous Pink Quartzite and Shale Marker horizons, which occur between the Upper and Lower Banded Sandstone and contain the CRO.

4.1.2 Fitwaola Deposit

The Fitwaola open pit mine is located about 20 km from Chingola and was discovered in the 1950s with commercial production commencing in August 2005.

The copper mineralisation is developed over an 800 m strike length and dips relatively steeply at 75 to 80^{o}, being 6 to 7 m thick at surface. It comprises malachite and chrysocolla in the oxide zone along with minor cuprite. Some of the acid-insoluble copper is refractory and contained in micas or wad. Gangue acid consumption (GAC) was low and the ore was used as a direct feed to the Nchanga Leach Plant.

4.2 Reserve and Resources

4.2.1 Nchanga Underground Mine

Nchanga Mine employs an in-house proprietary software developed over a period of some 25 years known as the Dynamic Ore Reserve Estimation System II ("DORS II"). It develops a 3-D stratigraphic model within which grade estimates are interpolated and ROM tonnages and grades estimated to produce Mineral Resource and Mineral Reserve statements. In certain areas where this technique is not applied the underlying estimates are interpreted manually by using survey data as a guide.

The information database for Nchanga Underground Mine as of August 2005 included geological and assay information obtained from surface and underground drilling and channel samples obtained from raises.

Resource estimation at Nchanga Underground Mine depended upon geological interpretation of the main stratigraphic units, namely the Lower Banded Sandstone, the Lower Banded Shale, the Transitional Member and the Arkose. The intersections of these geological units were wire-framed to defined 3-D surfaces of the respective contacts. Superimposed on this was a 1%TCu assay cut-off, which then defined the Assay HW limit and the Assay FW limit. Spatial grade interpolation parameters were then used as a basis for kriging into a 3-d block model, which was classified in accordance with rock type. Application of the relevant density factors (based on historical analysis) then gave the in-situ tonnage and grades.

Table 4-1 and Table 4-2 below show the KCM reserves and resources statements for Nchanga Underground as of August 2005, which have been reviewed and verified by IMC. It should be noted that the resources do not include, and are additional to the reserves.

Table 4-1 Nchanga Underground Reserves

Operation	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total Cu (%)	Acid Soluble Cu (%)	Total Co (%)	Acid Soluble Co (%)
Nchanga Underground LOM = 9 years	Proved	4.08			2.66	1.18		
	Probable		7.79		2.39	1.12		
	Total			**11.87**	**2.49**	**1.14**		

Table 4-2 Nchanga Underground Resources

	Resource Category	Measured (Mt)	Indicated (Mt)	Measured and Indicated (Mt)	Inferred (Mt)	Total Cu (%)	Acid Soluble Cu (%)	Total Co (%)	Acid Soluble Co (%)
Nchanga Underground	Measured	1.23				3.67	1.66		
	Indicated		1.28			4.16	2.04		
	Total			**2.51**		**3.92**	**1.85**		
	Inferred				28.04	2.30	0.55	0.37	

4.2.2 Nchanga Open Pit

The information database for the Nchanga Open Pit (NOP) as at August 2005 included geological assay information obtained from surface and underground drill holes collated over a 50-year period. The diamond drill holes drilled from surface predominated and logging procedures have been standardised since the 1970s. As of September 2001, the total drill hole database comprised some 1,951 holes. Sampling procedures for holes drilled from surface included the splitting of core with one half being sent to the Nchanga Division Analytical Services Laboratory.

An Assay Hangingwall and Assay Footwall contact had been modelled for each orebody. These ore envelopes were defined manually using the lithological surfaces as a guide to the structural style in both the LOB and the complexly folded UOB. A 0.5%TCu cut off was used for both the copper orebodies.

The sectional interpretations were then wire framed to produce separate solids for the LOB, West Pit UOB, East Pit UOB and CRO mineralisation.

Density estimates were based on historical analysis and included the following:

- LOB at 2.58 t/m^3;
- UOB - Copper at 2.45 t/m^3;
- UOB – Cobalt at 2.45 t/m^3;
- Silt at 1.50 t/m^3;
- Dump material at 1.80 t/m^3;
- Weathered material at 2.00 t/m^3; and
- Waste material at 2.50 t/m^3.

Table 4-3 and Table 4-4 below show the KCM reserves and resources statements for Nchanga Open Pit as of August 2005, which have been reviewed and verified by IMC. It should be noted that the resources do not include, and are additional to the reserves. IMC has treated these reserves as copper ore only with no value being attributed to the cobalt content. Cobalt ore occurs in small isolated pockets which has a total estimated resource of approximately 1.1 Mt at very low grades and has been discounted from IMC's evaluation.

Table 4-3 Nchanga Open Pit Reserves

Operation	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total Cu (%)	Acid Soluble Cu (%)	Total Co (%)	Acid Soluble Co (%)
Nchanga Open Pit LOM = 2.5 years	Proved							
	Probable		12.21		1.38	0.58	0.15	0.03
	Total			**12.21**	**1.38**	**0.58**	**0.15**	**0.03**

Table 4-4 Nchanga Open Pit Resources

	Resource Category	Measured	Indicated	Measured and Indicated	Inferred	Total Cu (%)	Acid Soluble Cu (%)	Total Co (%)	Acid Soluble Co (%)
Nchanga Open Pit	Measured								
	Indicated		1.85			1.42	0.64	0.18	0.04
	Total			**1.85**		**1.42**	**0.64**	**0.18**	**0.04**
	Inferred				1.65	1.53	0.59	0.33	0.06

4.2.3 Chingola Open Pit

Chingola Open Pit (COP) areas D and F are structurally simple with consistent orebody thickness and good spatial grade continuity along strike and dip. The two parts of the COP D and F pit are separated by a barren zone representing a topographic high or reef facies.

Table 4-5 and Table 4-6 below show the KCM reserves and resources statements for Chingola Open Pit as of August 2005, which have been reviewed and verified by IMC. It should be noted that the resources do not include, and are additional to the reserves.

Table 4-5 Chingola Open Pit Reserves

Operation	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Chingola Open Pit LOM = 4 years	Proved					
	Probable		20.17		1.75	0.45
	Total			**20.17**	**1.75**	**0.45**

Table 4-6 Chingola Open Pit Resources

	Resource Category	Measured (Mt)	Indicated (Mt)	Measured and Indicated (Mt)	Inferred (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Chingola Open Pit	Measured	0.09				1.49	0.61
	Indicated		3.16			2.19	0.88
	Total			**3.25**		**2.17**	**0.87**
	Inferred				82.41	1.34	0.84

4.2.4 Fitwaola Open Pit

On 1 April 2005, KCM estimated that Fitwaola contained 3.194 Mt of inferred resources at 3.53% TCu and 2.53% ASCu using a 1.5% TCu cut-off grade. These resources were not included in the KCM, LOM Plan, which seems surprising in view of the fact that the mine opened some five months later in August 2005. IMC has consequently re-classified these inferred resources as probable reserves after the application of 10% mining loss and 20% dilution.

Table 4-7 below shows the reserves for Fitwaola Open Pit as of August 2005 where all the inferred resources, from the KCM resource statement, have been converted to reserves.

Table 4-7 Fitwaola Open Pit Reserves as Converted Resources

Operation	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Fitwaola LOM = 2.5 years	Proved					
	Probable		3.45		2.94	2.11
	Total			**3.45**	**2.94**	**2.11**

4.2.5 Other Satellite Deposits

Table 4-8 below shows the satellite pits resources in August 2005 owned by KCM but not included in the its LOM plan, which were based on an optimised US$1.00 per lb pit shell. These resources for Mimbula and Chingola Open Pit - ACE were based on alternative treatment options not practiced by KCM (ie heap leach) and had been classified as Inferred due to low geological confidence in the data used. Until a viable process method has been verified these resources can only be considered as future upside potential.

Table 4-8 Satellite Deposit Inferred Resources

	Pit	Measured (Mt)	Indicated (Mt)	Measured and Indicated (Mt)	Inferred (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Nchanga Satellite Pits	Chingola "ACE"				35.56	1.54	0.99
	Mimbula I				25.30	1.16	0.70
	Mimbula II				21.55	1.24	0.73
	Total				82.41	1.34	0.84

4.2.6 Tailings Dams

As of August 2005, the Tailings Dams (TD) at Nchanga were being processed at the nearby Tailings Leach Plant (TLP). They comprised relatively coarse tailings residue arising from the treatment of ROM copper ore at the Nchanga concentrator dating from 1964. The remaining dumps were TD2, TD3 and TD4, which were established in 1964, 1974 and 1972 respectively.

The database for the Tailings Dams as of August 2005 included the results of drilling and test pit campaigns undertaken between 1976 and 1990 and later in 2000. The results of this work form the basis of the August 2005 estimate.

IMC understands that the densities and GAC factors were as follows:

- TD2 has density of 1.60 tm-3 and GAC of 8.63 kg/t;
- TD3 has density of 1.60 tm-3 and GAC of 16.30 kg/t; and
- TD4 has density of 1.60 tm-3 and GAC of 17.00 kg/t.

The KCM interpretation of the SAMREC code to the Tailings Dams, with which IMC concurs, classified TD2 as Probable Reserve and TD3 and TD4 as a Proved Reserve as of August 2005.

Table 4-9 below shows the KCM reserves statement for the Nchanga Tailings Dams as of August 2005, which have been reviewed and verified by IMC.

Table 4-9 Tailings Dam Reserves

Operation	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total Cu (%)	Acid Soluble Cu (%)	Total Co (%)
Tailings Dams	Proved	70.90			0.68	0.47	0.02
	Probable		5.52		0.74	0.55	
	Total			**76.42**	**0.69**	**0.48**	**0.02**

4.2.7 Chingola Refractory Ore

In addition to the tailings dams there were copper refractory ore (CRO) dumps that comprised refractory ore, mined as waste from the NOP and certain of the satellite deposits from 1955. When the inherent grade was in excess of 0.5%TCu the refractory ore was stockpiled in various locations within the Nchanga mining lease. No treatment process has yet been developed to extract the copper from this micaceous material on a commercial basis so the CRO dumps are excluded from reserves statements but are discussed below in Section 4.8.1.

Table 4-10 below shows the KCM resources statement for the Nchanga CRO dumps as of August 2005, which have been reviewed and verified by IMC.

Table 4-10 Chingola Refractory Ore Resources

	Resource Category	Measured (Mt)	Indicated (Mt)	Measured and Indicated (Mt)	Inferred (Mt)	Total Cu (%)	Acid Soluble Cu (%)
Nchanga CRO Dumps	Measured						
	Indicated		150.84	150.84		0.87	0.60
	Total		150.84	150.84		0.87	0.60
	Inferred				2.27	0.62	

4.3 Facilities

At the Valuation Date the facilities at Nchanga consisted of two underground mines, three surface mines, two concentrators, a leach plant, tailings disposal facilities and a copper refinery.

4.3.1 Underground Mining Facilities

Production from Nchanga underground mines commenced in 1927, but the mine was closed in the 1930s due to flooding and low copper prices but was subsequently re-opened in 1937.

In August 2005 there were two separate underground mines; Nchanga underground mine and Chingola B mine.

4.3.1.1 Nchanga Underground Mine

The mine was and is accessed by two vertical shafts approximately 945 m deep, both equipped to hoist ore, waste, personnel and materials.

The mining method used was block caving; however, since the orebodies were shallow dipping the block caving method applied was a variation on the traditional method. The mining area was undercut by long-hole drilling and blasting and the ore was allowed to cave into a series of finger raises from which it was pulled by scraper winches into the ore handling system. The rate of caving was carefully controlled to ensure efficient extraction of the ore and limited dilution, a mining method characterised by a high development ratio.

At the Valuation Date mine production was stable and development rates were commensurate with the planned production.

Nchanga Underground was and remains a wet mine pumping 75,000 to 85,000 m^3 of water day. Most of this water was pumped from the 2800 level and some from the 1600 level. Water control in the mine was good and did not hamper the mining operations.

4.3.1.2 Chingola B Mine

In August 2005 Chingola B was a small mechanised room and pillar mine. It had previously produced around 20,000 tpm but was then nearing the orebody fringe areas and production was winding down. There were plans to reclaim pillars but this activity had not started at the Valuation Date. As no future extensions to this mine were planned by KCM it was likely the mine would close in the near future.

4.3.2 Surface Mining Facilities

In August 2005 there were three separate open pit mines NOP, COP (operating two production sections) and Fitwaola.

4.3.2.1 Nchanga Open Pit

Operations commenced at NOP in 1955 and at the Valuation Date the pit was approximately 4.6 km long and 2.2 km wide. Mining was taking place down to approximately 420 m below the original surface level using conventional methods with a fleet of electric rope shovels and diesel haul trucks handling the ore and waste.

A number of new haul trucks had recently been added and the condition of the haulage fleet was good with a 170 t to 210 t capacity range. The shovels, while not new, were maintained in good operating condition and it was considered that the existing mining fleet would operate to the end of mine's life.

Operations at the pit had been totally restored to normal after a major south wall slope failure in April 2001. However, in August 2005 NOP was considered by KCM to have a limited life and was expected to cease operations completely during 2008-09. This view is discussed in the IMC projections, Section 4.9.2 below.

4.3.2.2 Chingola Open Pit

Operations commenced at COP in 2003 and it was viewed as the successor to NOP. At the Valuation Date F and D pits were operational using the same conventional methods and equipment as NOP. As mining of ore and overburden stripping decreased at NOP, equipment was being taken to the COP pits. COP showed slightly higher rates of ore production compared with NOP which could be attributed to the development of a more compact pit, the introduction of a new Caterpillar 793 truck fleet and a better waste to ore stripping ratio.

4.3.2.3 Fitwaola Open Pit

Mining of a small limited life oxide deposit commenced at Fitwaola during 2005 with initial pre stripping followed by first production in August. At the Valuation Date the mine was being started as a contractor operation. Mining of ore was to be at the rate of approximately 65,000 tpm at a stripping ratio of approximately 25:1. The contractor equipment installed at the mine had adequate capacity to produce these tonnages as a truck and shovel operation. A separate contract had been established for the haulage of ore to the process plant at Nchanga. KCM expected that the reserves would be depleted during 2007.

4.4 Process Plants

As at August 2005 ore was supplied to the concentrators from the underground mines, NOP, COP and Fitwaola. Ore from the open pits was crushed and ground at the East Mill and pumped to the West Mill for flotation. Ore from the underground mine was processed entirely at the West Mill.

A separate crushing, grinding and flotation circuit was provided for cobalt ore, which was available in limited quantities and was processed in campaigns. When not being used for cobalt ore (as was the case in August 2005) this plant was used to process oxide ore which was either ground and sent directly to the tailings leach plant (TLP) or, if it contained some sulphide copper, floated and the tailings sent to the tailings leach plant.

4.4.1 East Mill

At the Valuation Date the East mill consisted of a crushing, washing and grinding plant with ground ore slurry being pumped to the West Mill for flotation.

A gyratory primary crusher was situated close to the pit perimeter. Crushed ore was then delivered to the washing plant by conveyor belt.

Wash water was added where the conveyor discharged onto two triple deck vibrating screens. The oversize from the top two decks was conveyed to the secondary crushers and thence to the fine ore stockpile. The undersize material from the lowest deck was pumped to a bank of hydrocyclones. The underflow was dewatered on a dewatering screen and discharged on to the conveyor to the fine ore stockpile. The cyclone overflow was thickened to return the water to the washing plant, while the thickener underflow was pumped to the mill sumps.

From the fine ore stockpile, ore was fed by conveyors to three rod mills that discharged into mill sumps. From each sump the slurry was pumped to a 20" Krebs hydrocyclone. The cyclone underflow was distributed between five ball mills that discharged into the mill sumps. Cyclone overflow gravitated to agitated tanks from which five sets, each of four pumps in series, pumped the slurry with a particle size of 55 – 60% finer than 75 microns at 250 tonnes of ore per hour per pump set to the West Mill.

4.4.2 West Mill

As the ore from the underground operations has a high clay content, after primary crushing in three gyratory crushers the ore was washed and screened to remove the slime content.

As of August 2005 the de-slimed ore was crushed by, two standard secondary crushers and a tertiary crusher.

10 Hardinge ball mills each operating in closed circuit with Krebs hydrocyclones ground the ore to a particle size 55 – 62% finer than 75 microns before being pumped to the flotation cells.

The open pit ore slurry from the East Mill was distributed between two banks of Wemco rougher flotation cells but the West Mill ore was processed in a single bank of Wemco rougher cells.

The concentrate from the underground ore went to a thickener and on to three square flotation columns running in parallel. The concentrate from the columns was final concentrate and went to the concentrate thickeners. Tailings from the columns fed a flotation scavenger circuit with three banks of Wemco cells followed by two banks of Denver cells. Concentrate from the scavenger cells was fed to a cleaner flotation column and on to the concentrate thickener.

The rougher concentrate from the open pit ore went to a separate thickener and flotation column before going to the combined concentrate thickener where it was thickened and filtered using a Larox automatic horizontal plate filter press. Filtered concentrate was sampled and conveyed to concentrate storage from which it was loaded on to road or rail for transport to the smelter at Nkana.

4.4.3 Cobalt Concentrator

Within NOP there were from time to time pockets of cobalt ore exposed, typically containing about 1.3 % copper and 0.3 % cobalt. By August 2005 most of this ore had already been processed but a small amount remained which was processed in campaigns as it was mined. The cobalt was present in the form of carrolite and heterogenite and the copper was also present in chalcopyrite, bornite and chalcocite. A separate section of the West Mill, which processed this cobalt ore, was also used to process "oxide" ore, which was crushed and ground and then sent to the tailings leach plant. When the cobalt concentrator processed cobalt ore, both copper and cobalt were recovered by flotation into concentrate typically containing 16 % copper and 4 % cobalt. The concentrate was despatched to Chambishi or Nkana cobalt plants for refining.

When a cobalt campaign was underway, a primary gyratory crusher close to the pit perimeter prepared the cobalt ore prior to transportation to the West Mill for secondary crushing and grinding initially in rod mills. The rod mill product was sized with two Krebs hydrocyclones, the underflow feeding the two Hardinge ball mills and the overflow passing to the cobalt flotation circuit.

A bank of 8 m^3 Wemco rougher flotation cells provided a rougher concentrate which was cleaned in a single stage column to produce final copper/cobalt concentrate. When cobalt ore was processed, the tailings were directed to the tailings dam and not to the tailings leach plant, in order to avoid cobalt contamination of the leachate.

The only 1.1 Mt of low grade cobalt ore remained in August 2005 which has been discounted by IMC as it had no material value which would make the cobalt concentrator available to process copper oxide ore from Fitwaola mine which was commencing the production of in August 2005.

4.4.4 Concentrator Condition

The Nchanga concentrator has its origins in the 1930's and some original structures and equipment remain. The plant has been greatly extended during its life and many items of new equipment had been installed prior to the Valuation Date. It remained an old plant and maintenance costs were high in comparison with newer concentrators, partly because of the age but more significantly because of the complexity of the plant.

In August 2005 the condition of the instrumentation and control equipment was generally poor. There was effectively no automation of the control of the plant so the efficiency of operation was dependant on operator skill.

Although the copper grade of the concentrate produced, averaging almost 42% Cu over the period January 2002 to July 2005, was high, the concentrate was not very clean as it contained a high percentage of insoluable material. A clean concentrate would normally contain less than 10% insoluables whereas the concentrate from Nchanga contained circa 20%.

4.4.5 Tailings Leach Plant

In August 2005, the concentrator recovered copper in the form of sulphide minerals but did not recover the copper in “oxide” minerals (acid soluble or AS copper). Tailing from the Nchanga concentrator was pumped to the tailings leach plant (TLP) which was built in 1973. Tailing produced before the construction of the TLP was stored in dams that have since been reclaimed. At the Valuation Date, tailing was being reclaimed by water monitors in Dam No.2 and pumped to the TLP.

At the TLP, both current production and reclaimed tailing was thickened and the water was returned to the reclaim monitors. The thickened tailing was then leached with sulphuric acid in air-agitated pachucas. Solid leach residue and leach liquor were then separated by counter-current decantation in five 76 m diameter thickeners. Part of the residue was filtered with counter-current washing on horizontal belt vacuum filters, but only 6 or 7 of the 26 filters were serviceable so most of the residue was not filtered. The residue was neutralised with lime and pumped to the current No.5 tailings dam.

The leach liquor was pumped to the solvent extraction plant, where copper was selectively extracted from the leach liquor into an organic phase in two stages of mixer-settler units. The raffinate (aqueous phase after copper extraction) returned to leaching or residue neutralisation as required to balance the liquor volumes in the process. The loaded organic phase was stripped using spent electrolyte from the copper electrowinning tankhouses. The copper was transferred to the electrolyte which was cleaned to remove traces of organic matter before being pumped to the electrowinning tankhouses.

In the electrowinning tankhouses, the electrolyte was pumped through many electrowinning cells in parallel. In each cell, starting cathodes of pure copper were interleaved between lead anodes. A direct electric current was passed from each lead anode, through the electrolyte to the adjacent copper cathodes. Copper electroplated from solution on to the cathode and oxygen was evolved at the anode. Spent electrolyte returned to solvent extraction.

There were two tankhouses at the TLP. The old tankhouse was built for the earlier high grade leach plant and dates back to the 1960’s; the new tankhouse was built in 1986. Both tankhouses had a nominal capacity of 100 kt of cathode copper per year. The old tankhouse was in poor condition and two of its five sections were dismantled, reducing its nominal capacity to 60 ktpa. The new tankhouse had been extensively refurbished and re-equipped and was in good condition.

For several years leading up to the Valuation Date, the availability of sulphuric acid constrained production at the TLP. A 500 tpd sulphur burning acid plant was under construction prior to the Valuation Date and due to go into production in October 2005, which would overcome this constraint.

4.4.6 Tailings Disposal

At the Valuation Date there were a number of tailings facilities at Nchanga. TD2 – TD4 were historical dams that were being reclaimed. TD5 or the Muntimpa Tailings dam was where the tailings were being deposited. An emergency dam, TD7, also existed.

The Muntimpa Facility was approximately 10 km south of the Nchanga plant and was built in a valley below the confluence of the Muntimpa and Kasompe Streams. The embankments were continually raised with coarse tailings and a surface decant on the eastern side of the dam was used to discharge the water which flowed into the Muntimpa Stream. In accordance with the original design, the tailings facility had the potential to increase its capacity, in accordance with the original design, by wall elevation, which would be able to accommodate the tailings for the life of the mine.

4.4.7 Management

The management team at Nchanga in August 2005 comprised a complete team of long term former ZCCM employees who had been associated with Nchanga or other KCM facilities for the majority of their professional careers. The senior IBU team operated from a suite of offices close to the mine sites with the general operational management team located at the individual units, who were in daily and constant hands-on control of the operations.

Both of these teams appeared to operate in a reasonably autonomous manner at the operational level. August 2005 was also the time when the Business Units were being established as stand alone profit centres which would further enhance their autonomy.

All the members of the KCM Nchanga management team who were in contact with IMC appeared to be well informed, competent and confident in their positions and fielded all our questions without reference to higher authorities except where the release of certain items of what could be considered commercially sensitive information was involved.

4.5 Infrastructure

4.5.1 Electrical Power

At the Valuation Date the Nchanga complex had two major substations, 'Stadium' and 'Avenue', where power was received from CEC. The Stadium substation transformed to 33 kV for use at the pumping station and the open pits and to 11 kV for other load centres including the concentrators and East Mill. The Avenue substation transformed solely to 11 kV, mainly for use in the TLP and acid plant. Both substations also provided electrical supplies to outside facilities such as the township and hospitals.

The substations were jointly owned by CEC and KCM; CEC operated the 66 kV equipment, switchgear and transformers and KCM the 33 kV and 11 kV equipment. Most of the equipment in the substations was installed in the early 1970s. The equipment was generally working satisfactorily despite its age, although spares were becoming a problem.

KCM has had a programme since 2004 of upgrading the switchgear by changing oil circuit breakers to vacuum circuit breakers and providing remote switching facilities. However, progress had been spasmodic due to budget allocations being rolled over.

4.5.2 Water Supply

The Nchanga complex obtained its clean water from the Kafue river supplemented by water from the underground mines. A pumping station situated on the bank of the river, approximately 10 km from Chingola, pumped the water from the river into a tank which then overflowed into a reservoir. The underground mine water drainage system also discharged into the tank where it was distributed to the various facilities.

Some water was passed to a local treatment plant to produce potable water for the mine complex and the township.

4.5.3 Workshops

The workshop facilities for the Nchanga complex were centralised into one location and operated as a separate entity. Generally the workshops were well run and maintained despite most of the equipment being 20 to 30 years old.

4.6 Environment

Upon take over from ZCCM in 2000, KCM acquired most of the facilities previously owned by ZCCM within the Nchanga complex. However, some facilities remained the financial responsibility of ZCCM, although under the management of KCM. Table 4-11 below shows the split of environmental liability responsibilities between KCM and ZCCM-IH (the successor to ZCCM) for the operational and non-operational facilities at Nchanga.

Table 4-11 Nchanga Facilities and Financial Responsibilities

Responsibility	
KCM	**ZCCM-IH**
Open Pits	
Nchanga Open Pit, Block A, Chingola D and F, Fitwaola	Chingola B, C and E, Luano, Mimbula 1 and 2, Fitula
Underground Workings	
Shafts C, D, and North, inclines A and B, sub-incline shafts A, B, G, H, Portal B	
Processing Facilities	
East Mill, West Mill, Tailings Leach Plant	High Grade Leach Plant, Pilot Heap Leach
Overburden Dumps and Stockpiles	
OB 1, 2, 3, 16, 17, 20, 21, 22, 23, Stockpile 14, 16	OB 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19
Tailings Dams	
TD2, 3, 4, 5, 7	TD1
Storage Facilities	
Reagent, Fuel, Acid, Polychlorinated biphenyls	
Water Related Infrastructure	
Kafue River intake structure, Potable water treatment plant, Water Dam 2, Railroad Dam 3	Fitula Dam
Pollution Control Dam – PCD – WD4	
Supporting Infrastructure	
Plant roads and railroads, Nchanga North and South Hospitals, Avenue and Stadium substations, Workshops, Laboratories	Nchanga power plant

The facilities owned by KCM were assessed on a yearly basis with the results submitted to the ECZ. Areas where Nchanga was not compliant with its applicable environmental regulation in August 2005 were as follows:

- High concentrations of total suspended solids and total dissolved solids in the waste water were being discharged into the Kafue River due to the lack of storage space and settling capacity.
- High sulphate content in the discharge from the Muntimpa tailing dam.
- Contamination of ground water from the water pumped out of operating open pits
- Oil and hydrocarbon storage at Fitwaola was deficient as the bunding around the storage areas did not have sufficient storage capacity
- Dust generated from blasting as well as the haul trucks
- Inadequate dust suppression through watering of haul roads and active mining surfaces

In order to comply with the regulations a number of measures should have been taken:

- The pollution control dam and other storage dams should have been dredged on a regular basis and monitoring of the sediment load should have been ongoing;

- The overburden dumps should have been rehabilitated and vegetated to reduce sediment discharge through erosion;
- Clean up should have been undertaken at spillage sites;
- Maintain surface water runoff channels and drains;
- Increased (and emergency) storage capacity should have been installed;
- Silt removed from ponds should be removed and disposed of at the tailings facility;
- Leakages from the tailings pipe line should have been prevented through maintenance and repair; and
- A comprehensive water balance should have been compiled to ensure that there would be sufficient storage capacity as well as to facilitate the implementation of a water recycling programme.

These actions and provision of facilities have cost implications, which are detailed below in IMC's environmental cost projections.

4.7 Projects

4.7.1 Acid Plant

In June 2004 the KCM board approved US$12.4 M to build a sulphur burning acid plant at Nkana but in September the board agreed that the plant should be relocated to Nchanga with a 500 tpd design to supply acid to the TLP. Additional capital was approved in May 2005 by which time the majority of the foundation works had been completed with the main construction on programme to meet an October 2005 production start. The effects of this acid availability have been factored into the KCM LOM plan and IMC's operational plan projections.

4.8 Prospects

4.8.1 Chingola Refractory Ore

During the course of mining the Chingola open pit, a large amount of low grade ore that proved difficult to process was stockpiled adjacent to the pit. Prior to the Valuation Date the stockpiles had been drilled in a 10,700 m reverse circulation resource estimation programme that had established the resources listed in Table 4-10 above.

Most of the copper was acid soluble, and flotation recoveries were very low indeed, but the ore also resisted acid leaching at low temperatures with recovery of the order of 60% and acid consumption approximately 40 – 50 kg/t. At 65°C, acid leach recovery of the order of 80% was observed but the acid consumption was even higher, ranging between 30 and 150 kg/t, but typically 50 kg/t.

In 2000, it was predicted that acid plant construction at the smelters of the copperbelt, driven by the need to reduce sulphur dioxide emissions, would result in a surplus of sulphuric acid. With that in mind, KCM compared the use of the TLP for reprocessing 5 Mtpa of reclaimed tailings with processing the same amount of CRO, assuming an acid cost of US$60/t. It was concluded that the direct operating cost for producing copper from reclaimed tailings was approximately US$0.436/lb, whilst copper produced from CRO would have a cost of approximately US$ 0.678/lb. It was therefore concluded that it was better to continue to use the TLP to process reclaimed tailings.

In January 2005 the KCM board also considered this resource as a potential economic asset as it approved a programme of research and development into the processing alternatives for the CRO.

In May 2005 the progress report to the KCM board indicated that the total CRO resource was estimated at 150 Mt of ore with an average grade of 0.8%TCu and 0.5%ASCu with a processable resource of approximately 117 Mt with an average grade of 0.89% TCu and 0.63% ASCu, which is comparable the IMC verified resource of 150.84 Mt with a grade of 0.87% TCu and 0.60% ASCu.

A pre feasibility study into the viability of heating the ore had been conducted by KCM in conjunction with SRK Consultants of South Africa and Sinclair Knight Merz of Australia (SKM) as part of the 2004 Buyantashi programme. The pre feasibility study reviewed all the historical data and test work and indicated that treating the CRO was viable. The preferred treatment route was a combination of heap leach and ambient agitated leach of the fine fraction, with an estimated capital cost of US$80 M and operating costs of USc50 per lb.

The report set the following objectives for the next stages of the research work:

- Establish a project to treat 12 Mtpa of CRO material and produce 50 000 tpa of cathode copper for about 10 years, expanding beyond the existing stocks in the later years.
- Contribute to the Company's long-term goal of producing 500,000 tpa of copper.
- Become a lowest cost producer of copper for solvent extraction and electro-winning
- Utilise the sulphuric acid produced from the smelter and from the new Nchanga sulphur-based acid plant

The plan was to conduct large column leach tests and construct a 200 000 tonne semi commercial heap leach test pad, which could be expanded in modules up to a commercial capacity of about 12 Mtpa within two years.

INDEC SA of Chile had been contracted to provide the design, engineering, construction support and evaluation for the test phase where the approach would be to agglomerate the whole ore, instead of screening out the fine fraction, for agitation leach. The heap leach was expected to produce about 1,000 tonnes of copper for processing in the existing SX/EW plant.

By August 2005 some CRO had already been processed through the TLP and this seemed set to continue whenever shortages of ore from the open pit arose.

IMC considers a heap leach to be a suitable route for an ore that leaches slowly but a test heap would be required to confirm its potential. IMC considers that a buyer would include the potential effects of this prospect in its valuation by implementing CRO processing following the exhaustion of the Chingola open pit. The economics of the prospect are always going to depend on gross consumption and cost of acid which may be in excess of 65 kg per tonne of ore.

If the initial trials prove to be successful IMC estimates that a CRO project might develop with the following parameters:

- Capacity 12 Mtpa of CRO to produce 50 ktpa finished copper
- Timescale 5 to 6 years to commercial production
- Duration 12 years
- Capital Approx US$140 M for stand alone new leach pads, pipe lines, solvent extraction and electro-winning.
- Operating cost USc50 per lb, based of acid consumption of 60 kg per tonne sourced internally from either Nkana or the Nchanga sulphur burning acid plants at US$77 per tonne of acid.

4.9 IMC Forecasts

4.9.1 Underground Mine Plans

Table 4-12 Nchanga and Chingola B Underground Production History

	Item	Unit	2003	2004	2005	2005
					Jan - Mar	Apr - July
Nchanga Underground	ROM	Mt	2.96	2.93	0.74	0.95
	Ore Grade	TCu %	3.09	2.85	2.64	2.32
	Cont TCu	t	91,659	83,396	19,442	22,083

In August 2005 there were plans to open up the orebody into "Block K" in order to maintain production at the existing rates, shown in Table 4-12 above, which was supported by the commencement of the strategic development to access the Upper Ore Body (UOB) area for future production. The equipment and infrastructure was in place for this new development, and IMC would have expected the planned production from both of the areas to be realised. However, we consider that there is only limited scope for any significant production expansion given the remaining reserves, resources and the limitations of the existing mine infrastructure.

Table 4-13 below shows the KCM LOM plan and IMC's mine production projections for the remaining life of the Nchanga Underground mine, which contain the remnants of the Chingola B production within the 2005-06 figures, with the variances between the IMC and KCM projections of:.

- Ore mined and hoisted; and
- Ore grade;

IMC considers that no production changes should be made to the KCM projections; however we have estimated that the ratio of primary waste development will gradually increase from 10 m per 1,000 t of ore in 2005-06 to 13 m per 1,000 t of ore in 2008-09 and thence reduce as the access to the UOB is completed, which reflects the reduction in ore thickness as well as the reduction in overall development towards the end of the mine's life. The impact in costs is included in Section 4.9.4.

Table 4-13 Nchanga Underground Life of Mine Production Comparison

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
	Balance	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**
KCM LOM Projections Balance – Oct 05 to Mar 06											
Ore to Mill (Mt)	1.77	3.07	2.94	2.95	2.76	2.63	2.64	2.64	2.48		
Ore Grade (%)	2.47	2.44	2.46	2.57	2.56	2.49	2.44	2.46	2.51		
IMC Operational Plan Projections Balance – Aug 05 to Mar 06											
Ore to Mill (Mt)	1.83	3.07	2.94	2.95	2.76	2.63	2.64	2.64	2.48	2.48	2.48
Ore Grade (%)	2.45	2.44	2.46	2.57	2.56	2.49	2.44	2.46	2.51	2.51	2.51
Variance											
Ore to Mill (Mt)	N/A									2.48	2.48
Ore Grade (%)	N/A									2.51	2.51

4.9.1.1 Mine Life

As of August 2005, there were 11.9 Mt of ore reserves. In addition, the total measured, indicated and inferred in situ ore resources of Nchanga Underground was approximately 31 Mt giving a practical total of 25.33 Mt of reserves and mineable resources (allowing for losses and dilution). According to the IMC projections the total ore production until closure will be approximately 24.3 Mt. However, it has to be noted that the mineable resources include approximately 23 Mt of inferred resources.

Normally, inferred resources are upgradeable to reserves only after considerable additional exploration because of their limited geological knowledge. IMC would normally consider that 50% of the inferred resources would eventually be converted to workable reserves in assessing a mine's potential but believes that an aggressive buyer would include up to 80% of the inferred resources in its valuation, which could provide an additional 7 Mt of production, thereby extending the mine's life by an additional 2 years to 2015, and we have assumed that the valuation would be conducted on that basis.

4.9.2 Surface Mines Plan

At Nchanga Open Pit in August 2005, operations at the pit had been restored to normal after a major south wall slope failure in April 2001. NOP had limited reserves and not all were available due to an overburden stripping deficit which is reflected in the ore and waste tonnages shown in Table 4-14 below, and IMC would have expected the planned production to reflect the imbalance. As of August 2005, we would also have considered there to be only limited scope for any production increase or extension, given the remaining reserves and resources.

The limited pockets of cobalt ore which only total 1.1 Mt would not be able to be processed until the completion of the Fitwaola pit in 2009-10. IMC consider that the limited quantity of available ore, the time delay and poor cobalt grades would not enhance a buyers valuation and have omitted any cobalt production from its projections.

In August 2005 COP was working the F and D pits where earthmoving equipment was continually being transferred from NOP. The capacity of this equipment would in IMC's opinion enable ore production rates at COP to be maintained at the historic rates shown in Table 4-14 below and projected in the KCM LOM plan.

Fitwaola Open Pit was just starting production in August 2005 after the completion of the initial pre-strip, and the mine is a contract operation with a limited life. Because of this short life IMC considers that there is only limited scope for any production expansion beyond that included in the KCM LOM plan

Table 4-14 Open Pit Production History

	Item	Unit	2003	2004	2005 Jan - Mar	2005 Apr - July
Nchanga Open Pit	Waste	Mt	11.30	10.81	2.98	2.21
	Ore		5.30	0.85	0.82	1.15
	Ore Grade	TCu%	2.37	2.29	1.14	1.32
	Contained Cu	t	125,463	19,495	9,302	15,227
Chingola Open Pit	Waste	Mt	4.72	12.39	1.84	4.28
	Ore		0.00	2.15	0.32	0.32
	Ore Grade	TCu%	0	2.13	2.13	1.79
	Contained Cu	t	-	45,831	6,766	5,753

Table 4-15 below compares the KCM LOM plan and IMC's Operational plan production projections for the remaining life of the Open Pit mines showing the variances between the IMC and KCM projections of:

- Ore mined and hoisted; and
- Ore grade.

Table 4-15 Nchanga Open Pits Life of Mine Production Comparison

	2005-06 Balance	2006-07 Proj	2007-08 Proj	2008-09 Proj	2009-10 Proj	2010-11 Proj	Total Proj
KCM LOM Projections Balance – Oct 05 to Mar 06							
NOP ore mined (Mt)	1.04	1.48	2.48				5.00
COP ore mined (Mt)	2.13	6.13	5.16	5.26			18.68
Fitwaola ore mined (Mt)							
Total ore mined open pit (Mt)	**3.17**	**7.62**	**7.64**	**5.26**			**23.68**
Open pits delivered to mill (Mt)	2.88	6.00	6.00	6.00			20.88
Ore Grade (%TCu)	1.94	1.50	1.70	1.81			1.71

IMC Operational Plan Projections	**Balance – Aug 05 to Mar 06**						
NOP ore mined (Mt)	2.62	3.77	0.79	3.57	2.53		9.52
COP ore mined (Mt)	1.52	1.84	3.72	3.32	5.22	9.32	23.10
Fitwaola ore mined (Mt)	0.75	0.75	0.80	1.00	0.84		3.39
Total ore mined open pit (Mt)	**4.89**	**6.36**	**5.31**	**7.89**	**8.59**	**9.32**	**36.01**
Open pits delivered to mill (Mt)	4.06	5.56	6.00	6.50	6.53	6.50	32.29
Ore Grade (%TCu)	1.92	1.78	1.94	1.88	1.79	1.60	1.80
Variance							
NOP ore mined (Mt)	N/A	-0.69	1.09	2.53			4.51
COP ore mined (Mt)	N/A	-2.41	-1.84	-0.04	9.32		4.42
Fitwaola ore mined (Mt)	N/A	0.80	1.00	0.84			3.39
Total ore mined open pit (Mt)	N/A	**-2.30**	**0.25**	**3.33**	**9.32**		**12.32**
Open pits delivered to mill (Mt)	N/A	0.00	0.50	0.53	6.50	2.70	11.41
COP ore mined (Mt)	N/A	-2.41	-1.84	-0.04	9.32		4.42

4.9.2.1 Mine Life

The KCM LOM projections account for a total ore production from the Nchanga open pits (NOP and COP) delivered to the mill of 20.9 Mt to the end of 2008-09.

The August 2005 reserve statement of the Nchanga open pits (NOP and COP) states a total reserve of 32.4 Mt plus approximately 5 Mt of measured and indicated resources. The detailed mine plan prior to August 2005, which completes mining operations by December 2009 shows a total copper ore production from the open pits of 34.6 Mt of ore with 27.2 Mt delivered to the East mill.

Fitwaola pit had started initial pre-strip operations in April 2005 with first ore production in August 2005, based on resources of approximately of 3 Mt. The KCM LOM plan did not account for any ore and waste production from Fitwaola.

In preparing the IMC operational plan the following modifications have been made to the KCM LOM plan:

- Total NOP production of 9.5 Mt of ore up to 2008-09 with approximately 5.7 Mt delivered to the mill, and the remainder being regarded as untreatable;
- Total COP production of 23.1 Mt of ore up to 2009-10, which is all delivered to the mill by the end of 2010-11; and
- Fitwaola operations incorporated into the production and operating cost budget to completely extract the 3.3 Mt of reserves (calculated from 3.2 Mt resources at 85% extraction and 20% dilution) up to the end of 2008-09.

The IMC operational plan shows a total ore production from open pits delivered to the mill increasing by 11 M to 32 Mt, which includes all of the treatable copper ore in the reserves and resources and leaves little scope for any upside potential for a buyer to consider.

4.9.3 Process Plan

4.9.3.1 Concentrator

In the 3 years and 4 month prior to the Valuation Date the Nchanga concentrator had been able to process all of the ore that had been delivered to it. The nominal capacity of East and West mills combined, at 90% utilisation, was 11.4 Mtpa, while the projected KCM LOM throughput does not exceed 9.1 Mt in any year. There was no doubt that the concentrator would process the projected throughput based on the performance history shown in Table 4-16 below.

Table 4-16 Nchanga Concentrator Performance History

	Item	2002	2003	2004	2005 to August
Ore	Mt	7.36	7.36	7.70	3.83
Grade	% Cu	2.56	2.47	2.34	1.80
Concentrate	t	228,957	167,995	155,888	74,706
Grade	% Cu	37.62	43.09	40.75	35.09
Recovery	%	42.79	39.80	35.25	38.17

Concentrate Grade and Recovery Considerations

The concentrator was designed to recover only sulphide copper and the recovery of acid insoluble copper had deteriorated in the years up to 2005, more or less in line with the declining acid insoluble head grade. This was a normal relationship, which should be reversed when, as the KCM LOM projected, the acid insoluble copper head grade rises. The relationship is a standard formula which can be developed from the historical results of any concentrator by plotting recovery against AIS ore grade and establishing a regression line, which has been used by IMC in developing its operational plan projections.

Recovery = fixed historical value + regression gradient * AIS ore grade

For Nchanga and as shown in Figure 4-1 below.

Fixed historical value = 31.75%

Regression gradient = 0.27% per %AIS ore grade

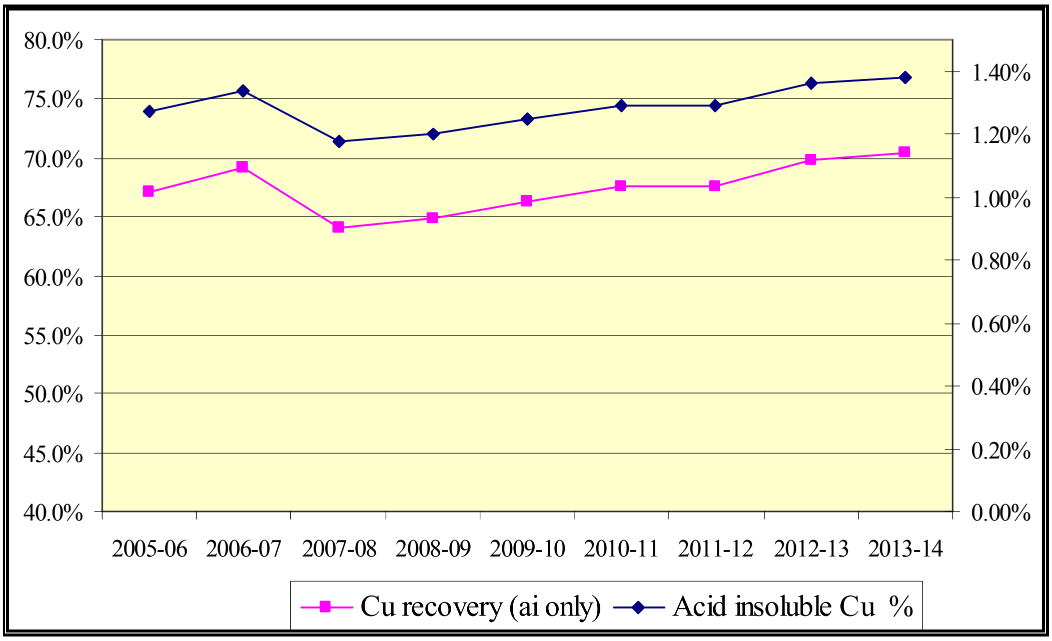


Figure 4-1 IMC Recovery and AIS Grade Projections

However, Figure 4-2 below shows the expected correlation as graphed from the KCM LOM projections where the relationship appears to prevail up to 2007 but inexplicably diverges from 2008 onwards.

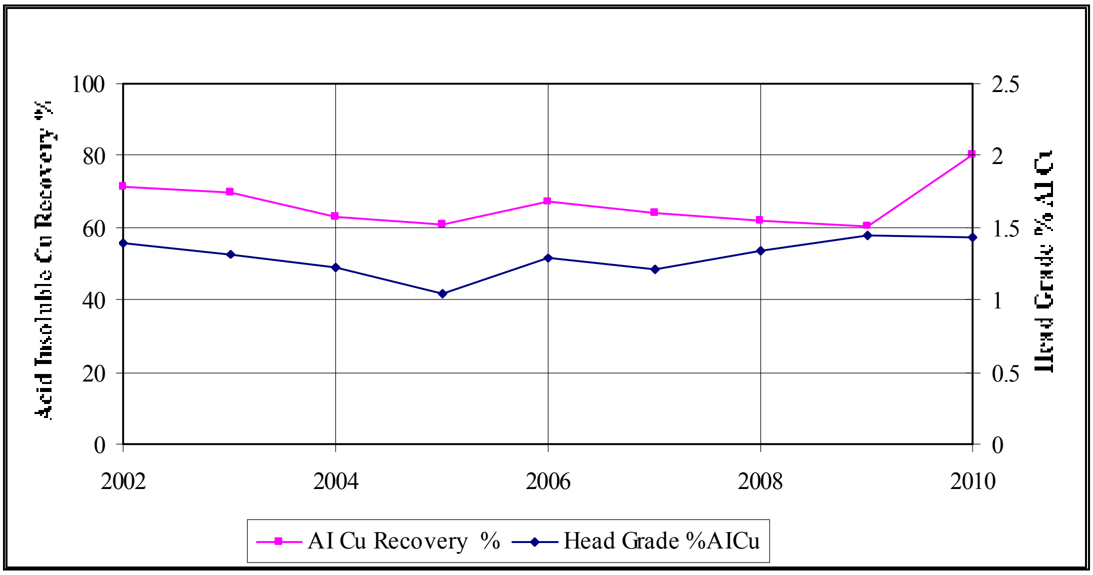


Figure 4-2 KCM LOM Historical and Projected Concentrator Recovery

4.9.3.2 Tailings Leach Plant

In August 2005 the TLP could only recover acid soluble copper so the residual sulphide copper present in the tailings from the concentrator would have passed through the TLP and be pumped to the tailings dam No. 5. The recovery of acid soluble copper depended on the proportion of the acid soluble copper that was leached (the % extraction) and the efficiency of the solid/liquid separation that followed leaching (the wash efficiency).

Provided that the leaching was properly controlled, the leach extraction would mainly be a function of the mineralogy of the ore and, beyond the operator's control. Table 4-17 below shows the production of the TLP in the period 2002 to 2005 where examination of the monthly operational records showed leach extraction efficiency varying between 54 % and 89.4 %, with a weighted average 81.96% for the overall period. IMC believes that the TLP can continue to maintain its historical throughputs and finished products in accordance with the KCM LOM and IMC projections.

Table 4-17 Tailings Leach Plant Performance History

	2002	2003	2004	2005 Jan - Mar	2005 Apr - July
Primary Copper Production (t)	**71,434**	**61,527**	**71,339**	**13,471**	16,793
Current Tails - material weight (t)	7,430,552	7,768,069	7,565,044	1,819,285	2,399,672
Current Tails by passed to dam (t)	213,747	244,110	230,448	209,831	196,755
ASCu (%)	1.02	1.01	1.00	0.66	0.72
Reclaimed Tails - Material weight (t)	5,442,778	2,757,479	3,492,208	1,348,251	1,629,674
ASCu (%)	0.53	0.56	0.52	0.50	0.50
Total TLP Feed (t)	12,873,330	10,525,548	11,057,252	3,167,536	3,832,591
ASCu (%)	0.81	0.89	0.85	0.59	0.58
ASCu Recovery (%)	68.31	65.05	75.31	72.57	74.98

Acid Consumption (tpd)	577	510	641	544	75,709
Leach Efficiency (%)	84.81	74.32	83.94	82.27	83.11
Wash Efficiency (%)	84.56	88.61	91.09	86.77	87.22
Inefficiency Factor	0.95	0.99	0.98	1.01	0.99
Acid Consumption (kg/t ore)	16.37	17.68	21.16	15.67	19.87
Acid to Cu Ratio (t per t)	2.95	3.02	3.29	3.63	4.46

Table 4-18 below shows the KCM LOM plan and IMC's delivered ore and process projections with the variances between the IMC and KCM projections of:

- Ore mined and hoisted;
- Ore grade;
- Concentrate Production;
- Concentrate Grade;
- Copper in Concentrate;
- Copper Recovery;
- Tailings to TLP;
- Tailings Dump;
- Copper Grade; and
- Primary Copper Production

In August 2005 the East mill crushed and ground all the open pit ores at a maximum feed rate of 6.4 Mtpa. IMC has extended the operational life of the East mill beyond the KCM LOM estimate by half a year to treat stockpiled open pit ores

In August 2005 the West mill was crushing all the Nchanga underground mine ore and floating all of the ores containing acid insoluble copper. With the underground mine producing approximately 3 Mtpa of ore and the Fitwaola ore not being treated on the sulphides circuits, the total feed to the flotation should peak at approximately 9.3 Mtpa ore in 2009-10.

Table 4-18 Nchanga Process Projection Comparison

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
	Bal-ance	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**
KCM LOM Projections Balance – Oct 05 to Mar 06											
Concentrator											
Total ore delivered to mill	**4.65**	**9.07**	**8.94**	**8.95**	**2.76**	**2.63**	**2.64**	**2.64**	**2.48**		
Total ore to flotation	**4.65**	**9.07**	**8.94**	**8.95**	**2.76**	**2.63**	**2.64**	**2.64**	**2.48**		
Ore Grade to flotation	2.14	1.82	1.95	2.06	2.56	2.49	2.44	2.46	2.51		
Conc production	134.5	208.6	219.4	232.2	94.7	87.9	86.6	87.2	83.6		
Conc grade	34.9	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0		
Copper in concentrate	46,942	72,995	76,805	81,276	33,148	30,767	30,298	30,512	29,268		

Concentrator Cu recovery	47.1	44.3	44.1	44.1	47.0	47.0	47.0	47.0	47.0		
Tailing Leach Plant											
Current tailings to TLP		9.65	8.72	8.71	2.65	2.54	2.55	2.55	2.39		
Tailings dump to TLP		7.17	7.28	7.28	12.12	12.23	12.22	12.22	12.37		
Total tailings to TLP		16.82	16.00	15.99	14.77	14.77	14.77	14.77	14.76		
Copper grade in TLP feed		0.49	0.45	0.45	0.46	0.44	0.45	0.44	0.44		
Primary copper production	36,372	65,096	57,425	57,284	53,837	51,652	52,467	51,513	51,279		
TLP Cu recovery		79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0		
IMC Operational Plan Projections Balance – Aug 05 to Mar 06											
Concentrator											
Total ore delivered to mill	**5.89**	**9.07**	**9.44**	**9.48**	**9.26**	**5.33**	**2.64**	**2.64**	**2.48**	**2.48**	**2.48**
Total ore to flotation	**5.49**	**8.07**	**8.44**	**8.50**	**9.26**	**5.33**	**2.64**	**2.64**	**2.48**	**2.48**	**2.48**
Ore Grade to flotation	2.09	2.00	1.96	1.93	1.89	2.04	2.44	2.46	2.51	2.51	2.51
Conc production	152.6	197.2	168.1	174.3	202.1	122.1	60.6	66.0	63.5	63.5	63.5
Conc grade	37.0	39.8	40.2	40.0	39.8	40.1	41.2	41.1	41.1	41.1	41.1
Copper in concentrate	56,453	78,557	67,515	69,725	80,380	48,957	24,980	27,079	26,120	26,120	26,120
Concentrator Cu recovery	49.1	48.6	40.8	42.6	46.0	45.0	38.7	41.7	41.9	41.9	41.9
Tailing Leach Plant											
Current tailings to TLP	5.34	8.26	8.60	8.63	8.33	4.80	2.38	2.38	2.23	2.23	2.23
Tailings dump to TLP	3.71	6.34	6.00	5.97	6.27	9.80	12.22	12.22	9.07	4.60	
Total tailings to TLP	9.04	14.60	14.60	14.60	14.60	14.60	14.60	14.60	11.30	6.83	2.23
Copper grade in TLP feed	0.79	0.67	0.73	0.70	0.55	0.55	0.55	0.54	0.57	0.64	1.04
Primary copper production	48,545	76,783	84,188	80,877	63,837	63,629	63,521	62,506	50,591	34,711	18,358
TLP Cu recovery	68.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0

Variance										
Concentrator										
Total ore delivered to mill	N/A	**0.00**	**0.50**	**0.53**	**6.50**	**2.70**				**2.48**	**2.48**
Total ore to flotation	N/A	**-1.00**	**-0.50**	**-0.45**	**6.50**	**2.70**				**2.48**	**2.48**
Ore Grade to flotation	N/A	0.18	0.01	-0.14	-0.67	-0.45				2.51	2.51
Conc production	N/A	-11.4	-51.3	-58.0	107.4	34.2	-25.9	-21.2	-20.1	63.5	63.5
Conc grade	N/A	4.8	5.2	5.0	4.8	5.1	6.2	6.1	6.1	41.1	41.1
Copper in concentrate	N/A	5,562	-9,289	-11,551	47,231	18,190	-5,318	-3,433	-3,149	26,120	26,120
Concentrator Cu recovery	N/A	4.3	-3.2	-1.4	-1.0	-2.0	-8.3	-5.3	-5.1	41.9	41.9
Tailing Leach Plant										
Current tailings to TLP	N/A	-1.39	-0.12	-0.08	5.68	2.26	-0.17	-0.17	-0.16	2.23	2.23
Tailings dump to TLP	N/A	-0.83	-1.28	-1.31	-5.85	-2.43			-3.30	4.60	
Total tailings to TLP	N/A	-2.22	-1.40	-1.39	-0.17	-0.17	-0.17	-0.17	-3.46	6.83	2.23
Copper grade in TLP feed	N/A	0.18	0.28	0.25	0.09	0.11	0.10	0.10	0.13	0.64	1.04
Primary copper production	N/A	11,687	26,764	23,593	10,000	11,978	11,054	10,993	-688	34,711	18,358
TLP Cu recovery	N/A									79.0	79.0

In the concentrator the simplified processing parameters as applied in the KCM LOM projections (47% overall Cu recovery and 35% concentrate grade) were modified to reflect the variances in the ratio of acid soluble and insoluble copper (resulting in an average overall Cu recovery of 46%), and the historically higher concentrate grades (38% insoluble Cu plus approx 2% acid soluble Cu). IMC believe this to be a more a more accurate method of developing the forward projections which will reflect the variability of the feed grade which depend on the annual proportions of ore from the NOP, COP and Nchanga underground operations.

The KCM LOM projections assumed and IMC agree a TLP Copper extraction rate of 79% provided the belt filters would be restored. In the course of updating the KCM LOM projections in 2005 the capacity of the TLP was reduced resulting in a operating life to 2013-14 where all of the tailings have not been treated. IMC has rectified the situation in its Operational plan by restoring the total plant capacity of 40,000 t/d, until the year 2013-14.

4.9.3.3 Comparison Variances

IMC projects an additional 100 kt of copper in concentrates and 171 kt of copper in cathodes as a result of:

- The changes in production of ore describe above
- Higher grades in the reclaimed tailings resulting in higher primary copper production

4.9.4 Operating Costs

4.9.4.1 Operating Cost History

In August 2005 the operating costs for Nchanga were allocated to the following cost centres:

- Open pit mines, partially split into Nchanga and Chingola as one unit, and Fitwaola;
- The underground mine;
- Concentrators comprising East mill and West mill;
- Tailings leach plant including tailings reclamation;
- Engineering and administration;

Table 4-19 to Table 4-23 and Figure 4-3 below show a breakdown of the operating cost history for the two years and four months prior to the Valuation Date for each of the cost centres. It should be noted that the variance to budget reflects the impact of a 45% shortfall in open pit and 11% shortfall in underground mine production for the 4 month period. This has a significant impact on the cost per tonne given the fixed cost component. IMC has used these historical operating costs in conjunction with KCM LOM plan, which itself reflects history, as the starting points for its cost projections which are discussed individually or in groups in Section 4.9.4.3 below.

Table 4-19 Nchanga and Chingola Open Pit Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05	Variance
	Actual ($/t)	Actual ($/t ore))	Actual ($/t ore)	Budget ($/t ore)	Apr-Jul 05
Ore Mined (Mt)	**5.45**	**3.77**	**1.47**	**2.70**	**-45%**
Manpower	**0.76**	**1.42**	**1.76**	**0.87**	**102%**
Operations					
- Fuel	1.27	2.28	2.46	1.91	28%
- Explosives	0.34	1.01	0.71	0.44	61%
- Water	0.02	0.03	0.03	0.02	75%
- Drilling	0.12	0.18	0.14	0.20	-31%
- Consumables	0.14	0.45	0.26	0.21	21%
- Stores & Spares	1.13	1.99	2.05	0.96	113%
- Power	0.09	0.14	0.13	0.08	77%
- Labour Hire	0.03	0.05	0.02	0.00	357%
Sub-total	**3.15**	**6.14**	**5.79**	**3.82**	**52%**
Repair & Maintenance					
- Stores & Spares	0.02	0.07	0.05	0.03	83%
- Mechanical	0.07	0.09	0.16	0.05	191%
- Electrical	0.06	0.17	0.17	0.13	36%
- Heavy Vehicles	0.54	1.38	1.31	0.84	55%
Sub-total	**0.69**	**1.70**	**1.69**	**1.05**	**61%**
Operating Lease & Hire	0.03	0.12	0.37	0.17	114%
Operating Projects					
Others	0.16	0.47	0.38	0.38	0%
Sub-total	**0.19**	**0.59**	**0.75**	**0.56**	**35%**
Total Costs	**4.79**	**9.85**	**10.00**	**6.30**	**59%**

Table 4-20 Nchanga Underground Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05	Variance
	Actual ($/t ore))	Actual ($/t ore))	Actual ($/t ore))	Budget ($/t ore)	Apr-Jul 05
Ore Mined (Mt)	**2.96**	**2.96**	**0.95**	**1.07**	**-11%**
Manpower	**3.53**	**4.37**	**4.98**	**4.46**	**12%**
Operations					
- Fuel	0.06	0.08	0.09	0.11	-14%
- Explosives	0.60	0.68	0.82	0.94	-13%
- Water	0.11	0.16	0.11	0.13	-13%
- Drilling	0.34	0.41	0.52	0.36	44%
- Consumables	0.27	0.00	0.47	0.42	14%
- Stores & Spares	0.94	1.05	0.94	0.94	0%
- Power	1.68	1.74	1.80	1.55	16%
- Labour Hire	0.01	0.63	0.81	0.84	-4%
Sub-total	**3.99**	**4.75**	**5.56**	**5.29**	**5%**
Repair & Maintenance					
- Stores & Spares	0.51	0.42	0.61	0.47	28%
- Mechanical	0.20	0.23	0.31	0.21	45%
- Electrical	0.27	0.22	0.41	0.25	61%
- Heavy Vehicles	0.00	0.00	0.00	0.00	
Sub-total	**0.99**	**0.87**	**1.32**	**0.94**	**41%**
Operating Lease & Hire	0.00	0.00	0.00	0.00	
Operating Projects	0.48	1.37	1.17	1.33	-12%
Others	0.34	0.16	0.22	0.25	-11%
Sub-total	**0.82**	**1.53**	**1.39**	**1.57**	**-12%**
Total Costs	**9.33**	**11.53**	**13.26**	**12.25**	**8%**

Table 4-21 Nchanga Concentrators Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05	Variance
	Actual ($/t feed)	Actual ($/t feed))	Actual ($/t feed)	Budget ($/t feed)	Apr-Jul 05
Feed to flotation (Mt)	**7.88**	**7.97**	**2.45**	**2.86**	**-14%**
Manpower	**0.29**	**0.31**	**0.49**	**0.47**	**5%**
Operations					
- Chemicals	0.22	0.15	0.19	0.20	-6%
- Mill Balls & Rod	0.32	0.15	0.32	0.42	-23%
- Water	0.00	0.01	0.01	0.01	18%
- other Consumables	0.00	0.00	0.00	0.00	34%
- Stores & Spares	0.24	0.21	0.32	0.34	-4%
Pumps	0.13	0.09	0.14	0.12	21%
Tyres	0.00	0.00	0.00	0.01	-72%
- Power & Fuel	0.52	0.28	0.49	0.45	9%
- Labour Hire / Task related	0.04	0.01	0.01	0.00	165%
Sub-total	**1.48**	**0.91**	**1.48**	**1.54**	**-4%**
Repair & Maintenance					

- Stores & Spares	0.31	0.23	0.27	0.28	-3%
- Mechanical	0.11	0.16	0.23	0.21	12%
- Electrical	0.04	0.05	0.05	0.08	-46%
- Heavy Vehicles	0.00	0.00	0.00	0.01	-100%
Sub-total	**0.46**	**0.45**	**0.55**	**0.58**	**-5%**
Freight on Dispatch of concentrates	0.16	0.10	0.13	0.13	-5%
Operating Projects	0.16	0.26	0.21	0.33	-37%
Others	0.26	0.17	0.09	0.15	-38%
Sub-total	**0.59**	**0.53**	**0.43**	**0.61**	**-30%**
Total Costs	**2.82**	**2.19**	**2.95**	**3.19**	**-8%**

Table 4-22 Nchanga Tailings Leach Plant Operating Cost History

	2003	**2004**	**Apr-Jul 05**	**Apr-Jul 05**	**Variance**
	Actual ($/t feed)	**Actual ($/t feed)**	**Actual ($/t feed)**	**Budget ($/t feed)**	**Apr-Jul 05**
Treated Material (Mt)	**10.53**	**10.88**	**3.83**	**5.15**	**-26%**
Manpower	**0.26**	**0.36**	**0.40**	**0.32**	**25%**
Operations					
Ore purchases	0.00	0.00	0.09	0.00	
- Chemicals	0.97	0.99	0.56	0.99	-43%
- Acid (plant)	0.00	0.00	0.00	0.00	
- Acid purchased	0.00	0.00	1.95	1.61	21%
- Acid Nkana	2.13	1.73	0.00	0.00	
- Lime	0.52	0.58	0.46	0.42	9%
- Water	0.06	0.06	0.06	0.04	62%
- Consumables	0.23	0.19	0.25	0.15	64%
- Stores & Spares	0.25	0.18	0.14	0.14	4%
- Power & Fuel	1.11	0.80	0.69	0.63	9%
- Labour Hire	0.00	0.01	0.01	0.02	-59%
freight of copper tailings	0.00	0.00	0.00	0.00	
- Freight Charges	0.16	0.22	0.19	0.23	-16%
Sub-total	**5.42**	**4.75**	**4.40**	**4.22**	**4%**
Repair & Maintenance					
- Stores & Spares	0.07	0.07	0.06	0.06	-13%
- Mechanical	0.15	0.13	0.16	0.12	34%
- Electrical	0.10	0.07	0.07	0.06	16%
Sub-total	**0.33**	**0.27**	**0.29**	**0.25**	**17%**
Vehicle & Equipment Hire	0.01	0.01	0.01	0.01	99%
Operating Projects	0.07	0.07	0.03	0.08	-65%
Others	0.08	0.08	0.09	0.09	2%
Sub-total	**0.16**	**0.16**	**0.13**	**0.17**	**-26%**
Total Costs	**6.16**	**5.55**	**5.21**	**4.95**	**5%**

Table 4-23 Nchanga Engineering and Administration Operating Cost History

	2003 Actual ($/t ore)	2004 Actual ($/t ore))	Apr-Jul 05 Actual ($/t ore))	Apr-Jul 05 Budget ($/t ore)	Variance Apr-Jul 05
Ore mined op and ug (Mt)	**8.42**	**6.72**	**2.43**	**3.77**	**-36%**
Manpower	**0.26**	**0.33**	**0.31**	**0.22**	**38%**
Operations					
- Fuel	0.04	0.05	0.05	0.04	13%
- Tyres	0.01	0.01	0.01	0.00	73%
- Water	0.00	0.01	0.00	0.01	-71%
- Pumps	0.00	0.00	0.00	0.00	53%
- Consumables	0.00	0.00	0.00	0.00	55%
- Stores & Spares	0.02	0.02	0.01	0.01	4%
- Power	0.45	0.53	0.49	0.29	67%
- Labour Hire	0.01	0.03	0.00	0.00	-9%
Sub-total	**0.53**	**0.66**	**0.56**	**0.36**	**54%**
Repair & Maintenance					
Stores & Spares	0.02	0.03	0.02	0.02	4%
- Electrical	0.02	0.04	0.02	0.02	3%
- Mechanical	0.03	0.02	0.03	0.03	-16%
- Building Repairs & Maint	0.02	0.02	0.01	0.01	46%
Sub-total	**0.09**	**0.12**	**0.08**	**0.08**	**0%**
Vehicle & Equipment Hire	0.00	0.00	0.00	0.00	
Operating Projects	0.02	0.12	0.03	0.06	-53%
Others	0.09	0.18	0.10	0.08	18%
Sub-total	**0.11**	**0.30**	**0.13**	**0.14**	**-12%**
Total Costs	**0.98**	**1.40**	**1.08**	**0.81**	**33%**

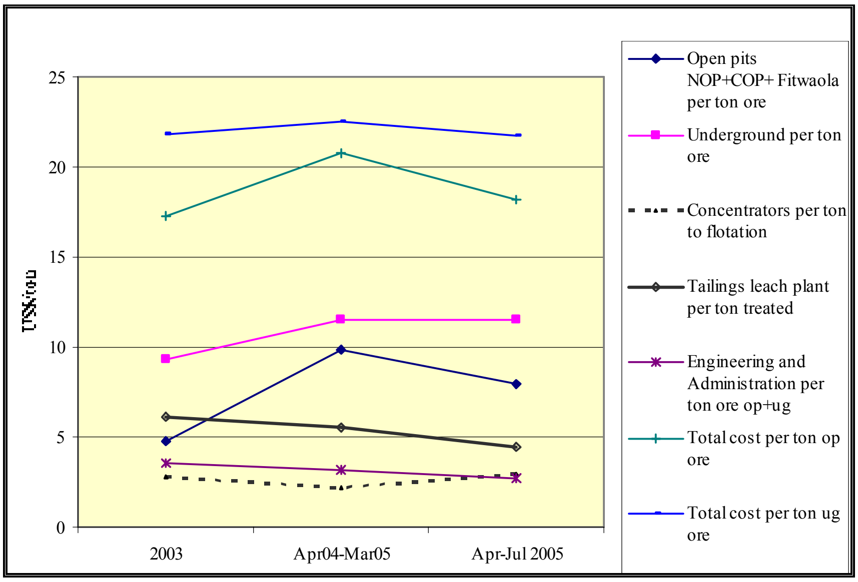


Figure 4-3 Nchanga Operating Cost History

Figure 4-4 below shows the distribution of operating costs by category for all the Nchanga operations together in the period Aril to July 2005. The major cost centres were consumables, manpower, stores and spares, power, repair and maintenance, others and administration in descending order. In producing its own forecasts, IMC has concentrated on the first four categories, which account for approximately 78% of the total cost.

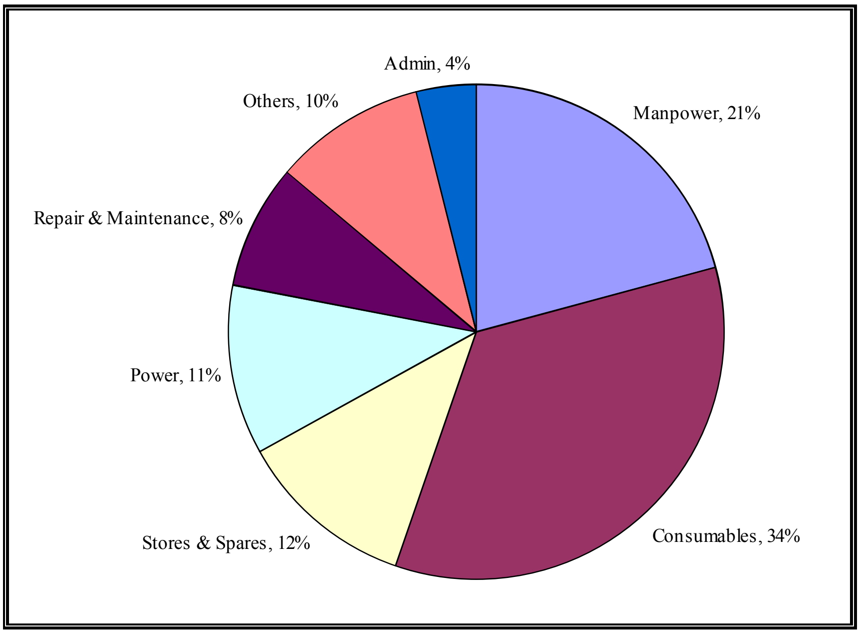


Figure 4-4 Distribution of Nchanga Operating Costs

4.9.4.2 Factors Determining Operating Costs

IMC has developed forward projections for each operating cost category based on the principles described in Section 3.5.3.2 above. Cost categories exhibit the same currency distribution as those shown for Konkola in Table 3-12 and the fixed/variable cost proportions shown in Table 4-25 to Table 4-26 below.

Table 4-24 Nchanga Underground Mining Costs Fixed and Variable Split

	Total Cost Apr-Jul 05 (M$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t ore)
Manpower	4,744	85%	4,032	0.400
Operations				
- Fuel	86	30%	26	0.06
- Explosives	777			0.15
- Water	492			0.05
- Drilling	108			0.11
- Consumables	451	20%	90	0.38
- Stores & Spares	897	30%	269	0.35
- Power	1,714	80%*	1,371	0.30
- Contract Labour	771			0.50
Repairs & Maintenance				
- Stores & Spares	576	25%	144	0.35

- Mechanical	292			0.20
- Electrical	388	30%	116	0.15
Operating Leases & Vehicle Hire				
Operating Projects	1,116			1.17
Others	207	40%	83	0.10
Total	**12,619**	**49%**	**6,132**	**4.28**

Note * power cost has a higher fixed cost than Konkola as it is a large old mine with long pumping and ventilation roadway distances

Table 4-25 Nchanga Concentrators Operating Costs Fixed and Variable Split

	Cost Apr-Jul 05 (M$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t flot)	Variable Cost ($/t grind)
Manpower	1,200	85%	1,020	0.05	0.01
Operations					
- Water	20				0.01
- Chemicals	455			0.19	
- Mill Balls & Rods	783				0.31
- Consumables	11			0.00	0.00
- Stores & Spares	787	10%	79	0.10	0.21
Pumps	343	20%	69	0.06	0.03
Tyres	6			0.00	0.00
- Power	1,190			0.20	0.29
- Labour Hire	25			0.00	0.00
Sub-total	**3,620**				
Repair & Maintenance					
- Stores & Spares	668	20%	134	0.10	0.11
- Mechanical	575	20%	115	0.10	0.08
- Electrical	112	20%	22	0.02	0.01
Sub-total	**1,355**				
Operating Lease & Hire	311			0.10	0.04
Operating Projects	514	50%	257	0.05	0.04
Others	222		-	0.07	0.01
Total	**7,223**	**23%**	**1,695**	**1.04**	**1.17**

Table 4-26 Nchanga Tailings Leach Plant Operating Costs Fixed and Variable Split

	Cost Apr-Jul 05 (M$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t tailings)	Variable Cost ($/t copper)
Manpower	1,519	100%	1,519		
Operations					
- Water	234			0.06	
- Chemicals	2,134			0.53	6.15
- Acid	7,485			Consumption	
- Lime	1,773			0.46	

- Consumables	966			0.25	
- Stores & Spares	537	10%	54	0.13	
- Power	2,625	15%	394	0.58	
- Labour Hire	24			0.01	
- Transport	727				43.29
Sub-total	**16,505**				
Repair & Maintenance					
- Stores & Spares	211	30%	63	0.04	
- Mechanical	624	30%	187	0.11	
- Electrical	273	30%	82	0.05	
Sub-total	**1,108**				
Operating Lease & Hire	47			0.01	
Operating Projects	108			0.03	
Others	333	30%	100	0.06	
Total	**19,620**	**12%**	**2,398**	**2.32**	**49.44**

4.9.4.3 Operating Cost Projections

IMC has concentrated on the most likely outcomes for the 4 highest cost categories shown in Figure 4-4 above which accounted for 78% of the operating costs in the 4 month period just prior to the Valuation Date. In each case it has reviewed the KCM LOM projection to determine whether these reasonably reflect what a buyer in August 2005 might have adopted and, if not, made appropriate amendments. It should be noted that the KCM LOM plan has used a number of different drivers for its variable cost: tonnes of ore, concentrate, acid and contained or finished copper, which IMC does not always consider to be appropriate. However, to be consistent IMC has referenced all the costs to tonnes of copper, the only common denominator at Nchanga. In addition, the KCM LOM has used the 2005-06 Budget (which had been unattained for the first four months) as a starting point for its projections whereas IMC who has used actual costs as a base point.

In addition, to the different starting points adopted by KCM and IMC a number of the projection profiles in the following category groups are affected by the waste stripping requirements omitted from the KCM LOM plan but included in the IMC Operational plan as shown in Table 4-27 below. IMC considers that the waste stripping deficit prevailing in August 2005 would have to be recovered to achieve the projected ore production where up to twice the 2005-06 levels would have to be removed in 2006-07 and 2007-08 with consequential operating costs.

Table 4-27 IMC Projected Nchanga Open Pits Waste Stripping

		2005	Aug 05-Mar 06	2005-06	2006-07	2007-08	2008-09	2009-10	2011-12
		Actual	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**
Waste	Mbcm	6.81	22.40	29.21	42.21	40.08	32.75	10.25	

Consumables

This category includes fuel, explosives, water, drilling, chemicals and mill balls and rod and in the four months prior to August 2005 accounted for 34% of the mining and process operating costs at Nchanga. These costs are largely variable and would be expected to follow the same profile as production, discussed in Sections 4.9.1 and 4.9.2 above.

The average historical consumables cost for the mine and concentrator as a whole over the two years and four month prior to the Valuation Date was US$362 per tonne of copper. The main differences in cost can mainly be attributed the high chemicals cost for the TLP projected by KCM from a 2005-06 budget (US$183 pt), which does not reflect actual costs for the first four months of the year (US$127 pt), divided by a low copper production, unlike IMC who has projected from actual costs and production.

Table 4-28 Nchanga Other Consumable Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of copper)		362	
Annualised Other Consumables Cost (US$ per tonne of copper)			
2005-06	528	421	-107
2006-07	496	454	-42
2007-08	493	463	-30
2008-09	481	431	-49
2009-10	340	306	-34
2010-11	345	303	-42

It should again be noted that, with the small exception of water which is purchased in Kwacha, consumable costs would mainly be incurred in US$ or SA Rand, so differential inflation and changes in the real Kwacha exchange rate should not significantly influence these costs in US$ terms.

The observed differences between the KCM LOM and IMC's operating plan are mainly attributed to the variety of drivers used by KCM, its use of the 2005-06 Budget as the starting point and the non-inclusion of the required waste stripping in KCM's cost calculations.

Manpower

In August 2005, manpower accounted for 21% of the mining and process operating costs at Nchanga. The operations employed 7,026 people including contractors and trainees. Average productivity over the two complete years and the four months prior to the Valuation Date was 769 tonnes of ore per man-year. In contrast to Konkola, activities at Nchanga are running down which will make it very difficult to improve productivity as this would require a large and rapid reduction in manpower. IMC considers that a buyer would assume the same productivity levels as KCM and include wholesale reductions in manpower as operations are concluded.

Wage Rates

IMC's expectations of wage rates are described in the Manpower part of Section 3.5.3.3 above. The severance payments as the open pits close are described in Section 7.3.2, and included in the IMC Corporate costs.

Table 4-29 shows a comparison between the KCM LOM plan and the IMC Operational plan for each year where the main differences can be attributed to the different starting points and the real terms labour rate increases projected. IMC has started from the actual cost for the first four months (which is similar to the KCM 2005-06 Budget), whereas the KCM LOM has projected from a single month (September 2005) actual cost. IMC's method is consistent with its overall approach for developing all projections, which we believe to be more realistic where production and manpower are fairly constant and the year on year changes are commensurate with a 14% real increase in labour rates up to the closure of NOP.

Table 4-29 Nchanga Labour Cost Comparison

	KCM LOM	IMC	Difference
Historical Average (US$ per tonne of copper)		223	
Annualised Labour Cost (US$ per tonne of copper)			
2005-06	371	293	-78
2006-07	401	284	-117
2007-08	453	303	-151
2008-09	461	314	-148
2009-10	490	306	-184
2010-11	515	282	-232

Stores and Spares

In August 2005 stores and spares represented 12% of the mining and process operating costs at Nchanga, where all the facilities had been working with little design upgrade and a limited capital replacement programme, and the mine had mainly manual production methods supported by limited infrastructure. The average historical stores and spares cost for the mine and process facilities as a whole for over the two years and four month prior to the Valuation Date was US$165 per tonne of copper. Table 4-30 shows a comparison between the KCM LOM plan and the IMC Operational plan for each year where the main differences can be attributed to the different staring points and the waste stripping issues.

Table 4-30 Nchanga Stores and Spares Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of copper)		165	
Annualised Stores and Spares Cost (US$ per tonne of Copper)			
2005-06	153	188	+35
2006-07	145	178	+32
2007-08	154	185	+32
2008-09	152	184	+32
2009-10	99	129	+29
2010-11	102	103	+1

It should be noted that between 10 and 30% of the stores and spares costs are estimated as fixed costs depending on the operation, leaving a high variable element.

Power

Nchanga mining and processing operations are part of the same power supply agreement that governs Konkola, which was established with CEC in March 2000 for a 20 year period as described in Section 3.5.3.3 above.

In August 2005 power accounted for 11% of the mining and process operating costs at Nchanga. Underground power has a high fixed cost, dominated by pumping and ventilation in the mine, both of which operate continually. However, open pit mine power is limited as there is no large pumping or ventilation element, and most of the energy is supplied in the form of fuel for the mobile plant. Process power is mainly consumed by the crushing and milling circuits and is therefore throughput dependant.

Table 4-31 below shows the Nchanga load profile which is a composition of different processes having varying specific power demands when related back to tonnes of contained or produced copper.

Table 4-31 Nchanga Power Profile April to August 2005

	Production	Units	Power (MWh)	Proportion	Specific Power	Units
Open pit mines	18,538,746	t ore & waste	7,149	2.8%	0.4	kWh/t
Underground mine	951,882	t ore	62,319	24.8%	65.5	kWh/t
Concentrators	2,447,686	t ore	43,284	17.2%	17.7	kWh/t
TLP	3,832,591	t ore	95,472	38.0%	24.9	kWh/t
Engineering	2,426,873	t ore to concentrators	42,909	17.1%	17.7	kWh/t
Total			**251,133**		**102.6**	**kWh/t ore to concentrators**

Table 4-32 below shows the annualised total power costs for the IMC and the KCM LOM projections where the differences can be attributed to additional copper production in the IMC operating plan shown in Table 4-18 with higher specific energy requirements from the TLP as well as the different starting points..

It should be noted again that the power supply agreement stipulated payment in US$ and hence there are no exchange rate issues to address in a real terms cost projection

Table 4-32 Nchanga Power Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of copper)		185	
Annualised Power Cost (US$ per tonne of copper)			
2005-06	170	164	-7
2006-07	150	151	+1
2007-08	145	156	+10
2008-09	144	157	+13
2009-10	166	161	-5

2010-11	167	178	+11

Repairs and Renewals

In August 2005 repairs and renewals, other than related stores and spare which where were considered above, accounted for 8% of the mining and process operating costs at Nchanga. This group of costs has an estimated 30% fixed element and would be expected to show a similar forecast profile as stores and spares.

The average historical repairs and renewals cost for the mine and processing facilities as a whole over the two years and four month prior to the Valuation Date was US$93 per tonne of copper. Table 4-33 below shows the overall impact envisaged by the KCM LOM plan and IMC's expectations from a buyer's perspective. Again this cost group is displaying a similar variance profile to the consumables because of the different starting points, production profile and waste stripping issues.

Table 4-33 Nchanga Repairs and Renewals Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of copper)		93	
Annualised Repairs and Renewals Cost (US$ per tonne of copper)			
2005-06	114	133	+18
2006-07	109	143	+35
2007-08	117	145	+28
2008-09	115	132	+17
2009-10	48	84	+36
2010-11	49	64	+16

Total Operating Costs

Table 4-35 below shows IMC's projections of total operating costs, incorporating the projected profiles from the individual cost groups above and, compares these with the KCM LOM projections

The comparison above has tended to show lower average costs in the IMC operating plan than the KCM LOM plan mainly emanating from lower chemical and labour costs. In addition, we have projected a lower acid cost as shown in Table 4-34 below. It should be noted that the historical cost was based on a high proportion of high priced purchased acid.

Table 4-34 Nchanga Acid Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of copper)	173		

Annualised Acid Cost (US$ per tonne of copper)			
2005-06	147	132	-15
2006-07	89	59	-30
2007-08	92	70	-22
2008-09	89	63	-26
2009-10	142	30	-112
2010-11	150	18	-132

Whereas the KCM LOM plan estimates fixed tonnages of acid from a single internal source, IMC has assumed a primary acid supply from Nkana backed up by a part utilised Nchanga acid plant, with the appropriate associated cost split.

Table 4-35 Nchanga Total Operational Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of copper)		1,433	
Annualised Total Operating Cost (US$ per tonne of copper)			
2005-06	1,681	1,511	-170
2006-07	1,581	1,469	-112
2007-08	1,652	1,520	-132
2008-09	1,638	1,459	-179
2009-10	1,482	1,162	-320
2010-11	1,531	1,082	-449

Table 4-36 shows the KCM LOM and IMC Operational Plan operating cost projections comparison to the end of the surface and underground mines up to 2013.

Table 4-36 Nchanga Operating Cost Projection Comparison

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
	Proj (M$)	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**
KCM LOM Projections											
Open pits	61.5	65.3	68.9	69.6							
Manpower	10.9	12.0	13.2	13.9							
Fuel	18.6	20.4	20.4	20.4							
Power	1.1	1.3	1.3	1.3							
Other consumables	17.5	18.2	19.2	19.2							
Repair & Maintenance	9.5	9.5	10.4	10.4							
Other cost	3.9	3.9	4.3	4.3							
Underground	42.5	43.7	45.1	46.2	45.5	45.0	34.9	34.8	32.8		
Manpower	17.1	18.8	20.7	21.7	21.7	21.7	14.0	14.0	13.2		
Power	5.5	5.3	5.1	5.1	4.7	4.5	4.6	4.5	4.3		
Other consumables	11.5	11.2	11.0	11.0	10.7	10.5	9.4	9.4	8.8		
Repair & Maintenance	2.9	2.9	2.9	2.9	2.9	2.9	2.3	2.3	2.2		
Other cost	5.1	5.1	5.1	5.1	5.1	5.1	4.2	4.2	4.0		
Concentrators	29.2	29.7	30.6	33.0	13.5	12.5	12.3	12.4	11.9		
Manpower	5.5	6.0	6.6	7.0	2.9	2.7	2.6	2.6	2.5		
Power	5.4	5.4	5.4	5.9	2.4	2.2	2.2	2.2	2.1		
Other consumables	9.7	9.6	9.9	10.6	4.3	4.0	4.0	4.0	3.8		
Repair & Maintenance	4.6	4.6	4.6	5.1	2.1	1.9	1.9	1.9	1.8		
Other cost	4.0	4.0	4.0	4.4	1.8	1.7	1.6	1.6	1.6		
TLP	72.7	56.5	52.8	53.2	51.2	49.9	50.4	49.9	49.7		
Manpower	6.4	7.0	7.7	8.1	8.1	8.1	8.1	8.1	8.1		
Chemicals	14.9	11.9	10.5	10.5	9.9	9.5	9.6	9.4	9.4		
Acid	20.0	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3		
Power	11.0	8.8	7.8	7.7	7.3	7.0	7.1	7.0	6.9		
Other consumables	14.8	11.9	10.5	10.5	9.8	9.4	9.6	9.4	9.4		
Repair & Maintenance	3.6	2.9	2.5	2.5	2.4	2.3	2.3	2.3	2.3		
Other cost	2.1	1.7	1.5	1.5	1.4	1.3	1.3	1.3	1.3		
Engineering& Admin	22.1	23.2	24.3	25.0	18.7	18.7	18.7	18.7	12.2		
Manpower	10.4	11.4	12.6	13.2	9.9	9.9	9.9	9.9	6.3		
Power											
Other	11.7	11.7	11.7	11.7	8.8	8.8	8.8	8.8	5.9		
Total operating cost	**228.1**	**218.3**	**221.8**	**226.9**	**128.9**	**126.2**	**116.3**	**115.8**	**106.5**		
IMC Operational Plan Projections											

Open pits	60.4	84.1	82.6	71.0	25.3						
Manpower	8.6	11.5	11.9	12.1	8.4						
Fuel	15.4	21.2	20.8	17.5	4.8						
Power	0.7	0.8	0.8	0.7	0.4						
Other consumables	19.4	24.7	24.5	21.6	6.2						
Repair & Maintenance	10.4	14.2	13.9	11.7	3.8						
Other cost	5.9	11.7	10.7	7.3	1.7						
Underground	39.1	41.7	42.2	43.6	42.4	40.6	40.7	39.2	35.0	35.0	32.9
Manpower	14.4	15.4	16.0	16.6	16.7	16.5	16.5	16.3	14.3	14.3	14.0
Power	5.2	5.3	5.2	5.3	5.2	5.1	5.1	5.1	5.0	5.0	4.9
Other consumables	11.7	12.6	12.7	13.3	12.5	11.5	11.5	10.5	9.0	9.0	7.5
Repair & Maintenance	3.9	4.2	4.2	4.3	4.1	3.8	3.8	3.6	3.3	3.3	3.0
Other cost	3.9	4.3	4.1	4.1	3.9	3.7	3.7	3.7	3.5	3.5	3.4
Concentrators	23.6	24.8	25.8	26.1	26.7	17.5	9.3	9.3	9.0	9.0	9.0
Manpower	3.7	3.9	4.1	4.2	4.3	3.9	2.6	2.6	2.6	2.6	2.6
Power	4.0	4.2	4.4	4.4	4.5	2.6	1.3	1.3	1.2	1.2	1.2
Other consumables	8.1	8.6	8.9	9.0	9.1	5.4	2.7	2.7	2.5	2.5	2.5
Repair & Maintenance	4.4	4.6	4.8	4.8	5.0	3.1	1.6	1.6	1.5	1.5	1.5
Other cost	3.4	3.5	3.6	3.7	3.8	2.5	1.1	1.1	1.1	1.1	1.1
TLP	58.5	54.3	56.3	55.1	49.3	46.9	49.0	48.7	36.6	25.5	14.0
Manpower	4.6	4.8	5.0	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Chemicals	7.2	8.2	8.3	8.2	8.1	8.1	8.1	8.1	6.3	3.8	1.3
Acid	17.8	9.2	10.6	9.5	4.3	2.0	4.1	3.8			
Power	8.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	7.8	5.2	2.5
Other consumables	15.0	16.7	17.1	16.9	16.2	16.2	16.2	16.1	12.6	7.9	3.0
Repair & Maintenance	3.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.3	2.4	1.4
Other cost	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.4	1.0	0.5
Engineering& Admin	22.2	23.2	23.6	23.9	24.0	16.8	16.5	16.4	15.9	15.9	13.9
Manpower	8.2	8.6	9.0	9.3	9.4	6.1	5.9	5.9	5.6	5.6	4.9
Power	3.5	3.6	3.6	3.6	3.5	2.6	2.6	2.6	2.5	2.5	2.2
Other	10.4	11.0	11.0	11.1	11.0	8.1	8.0	7.9	7.8	7.8	6.8
Total operating cost	**203.7**	**228.2**	**230.6**	**219.7**	**167.6**	**121.9**	**115.5**	**113.6**	**96.5**	**85.4**	**69.7**
Variance											
Open pits	N/A	18.8	13.7	1.5	25.3						
Manpower	N/A	-0.5	-1.3	-1.8	8.4						
Fuel	N/A	0.8	0.3	-2.9	4.8						
Power	N/A	-0.5	-0.5	-0.5	0.4						
Other consumables	N/A	6.5	5.3	2.4	6.2						

Repair & Maintenance	N/A	4.8	3.5	1.3	3.8					
Other cost	N/A	7.8	6.4	3.0	1.7					
Underground	N/A	-2.0	-2.9	-2.6	-3.1	-4.5	5.8	4.3	2.3	35.0	32.9
Manpower	N/A	-3.5	-4.7	-5.1	-5.0	-5.2	2.5	2.2	1.1	14.3	14.0
Power	N/A	0.0	0.2	0.2	0.4	0.6	0.6	0.5	0.7	5.0	4.9
Other consumables	N/A	1.4	1.7	2.3	1.8	1.0	2.1	1.1	0.1	9.0	7.5
Repair & Maintenance	N/A	1.4	1.3	1.5	1.2	1.0	1.5	1.3	1.1	3.3	3.0
Other cost	N/A	-0.9	-1.0	-1.0	-1.3	-1.4	-0.5	-0.5	-0.5	3.5	3.4
Concentrators	N/A	-4.9	-4.7	-7.0	13.2	5.0	-3.0	-3.1	-2.9	9.0	9.0
Manpower	N/A	-2.2	-2.6	-2.8	1.5	1.3	0.0	0.0	0.1	2.6	2.6
Power	N/A	-1.2	-1.0	-1.5	2.1	0.4	-0.9	-0.9	-0.9	1.2	1.2
Other consumables	N/A	-1.0	-1.0	-1.7	4.8	1.4	-1.3	-1.3	-1.3	2.5	2.5
Repair & Maintenance	N/A	0.0	0.2	-0.2	2.9	1.2	-0.3	-0.3	-0.3	1.5	1.5
Other cost	N/A	-0.5	-0.3	-0.7	2.0	0.8	-0.5	-0.5	-0.5	1.1	1.1
TLP	N/A	-2.1	3.5	2.0	-1.9	-3.0	-1.4	-1.1	-13.1	25.5	14.0
Manpower	N/A	-2.2	-2.8	-3.0	-2.9	-2.9	-2.9	-2.9	-2.9	5.2	5.2
Chemicals	N/A	-3.7	-2.3	-2.3	-1.7	-1.3	-1.5	-1.3	-3.1	3.8	1.3
Acid	N/A	-3.1	-1.7	-2.9	-8.0	-10.4	-8.2	-8.5	-12.3		
Power	N/A	0.9	1.9	1.9	2.4	2.7	2.6	2.7	0.8	5.2	2.5
Other consumables	N/A	4.8	6.6	6.4	6.3	6.7	6.6	6.7	3.2	7.9	3.0
Repair & Maintenance	N/A	1.1	1.4	1.4	1.6	1.7	1.6	1.7	1.0	2.4	1.4
Other cost	N/A	0.1	0.3	0.3	0.4	0.5	0.4	0.5	0.1	1.0	0.5
Engineering& Admin	N/A	0.0	-0.7	-1.1	5.3	-1.9	-2.2	-2.3	3.8	15.9	13.9
Manpower	N/A	-2.8	-3.6	-3.9	-0.5	-3.8	-4.0	-4.0	-0.7	5.6	4.9
Power	N/A	3.6	3.6	3.6	3.5	2.6	2.6	2.6	2.5	2.5	2.2
Other	N/A	-0.7	-0.7	-0.7	2.2	-0.7	-0.8	-0.9	1.9	7.8	6.8
Total operating cost	N/A	**9.9**	**8.8**	**-7.2**	**38.7**	**-4.4**	**-0.8**	**-2.2**	**-10.0**	**85.4**	**69.7**

Figure 4-5 below shows pictorially the overall operating cost per tonne for the remaining life of the Nchanga mines. It should be noted that the Fitwaola open pit has a short projected life of 2.5 years and requires a significant waste removal programme (with an overall stripping ratio over 26 to 1, tonne of waste to tonne of ore) and thus high operating cost per tonne of ore in 2006-07 and 2007-08, which is offset in terms of cost per tonne of copper by higher ore grades.

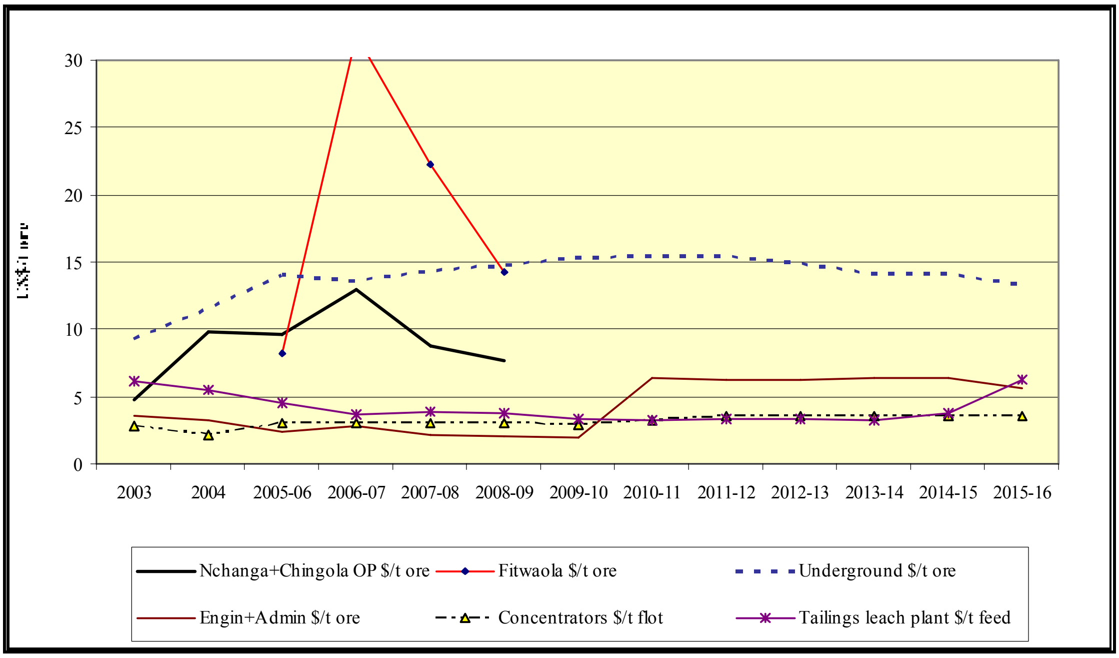


Figure 4-5 Nchanga Actual and Projected Operating Cost per Tonne

The results of the calculation of cost by currency based on the parameters set out in Table 3-12 is shown in Figure 4-6. The costs in Kwacha account for approx 35% of the total cost due to the profile of labour costs.

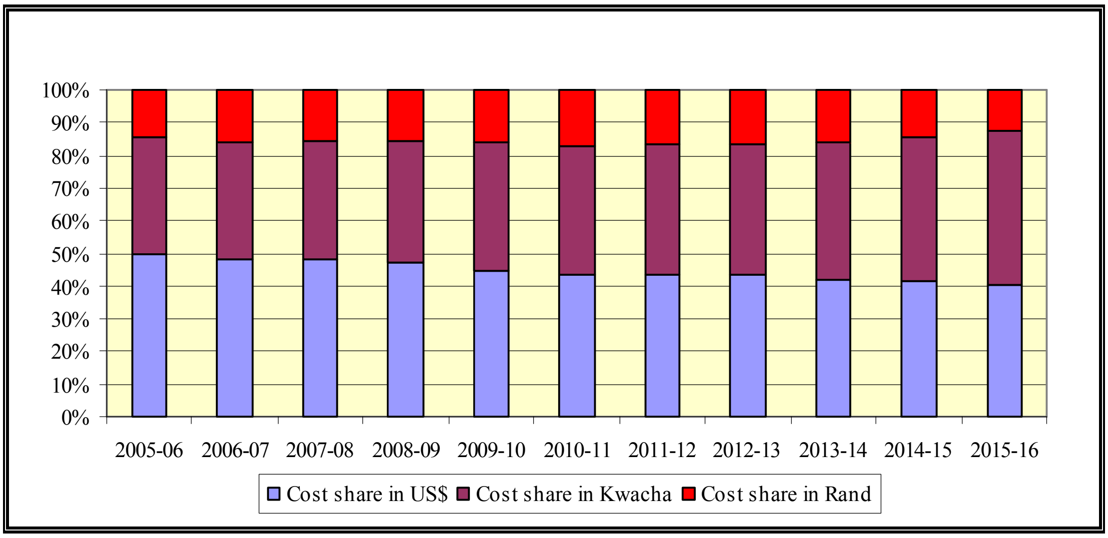


Figure 4-6 Nchanga Operating Cost by Currency

4.9.5 Capital Expenditure

Other cash expenses that were directly allocated to Nchanga comprise capital expenditures and environmental operational and remediation costs.

4.9.5.1 Sustaining Capital

Table 4-37 below shows the additional capital assets purchased or developed for the two years and four month prior to the Valuation Date. Since no expansion or development projects were underway during this period the improvements to land and buildings, mine property and leases as well as mining and concentrator replacement equipment would all be classified as sustaining capital.

Table 4-37 Nchanga Additions to assets 2003 to July 2005

		2003 (US$ M)	2004 (US$ M)	1st 4 Months 2005 (US$ M)
Land and Buildings		0.15	3.0	2.8
Mine Property and Leases		0.2	4.5	0.9
Computer Equipment		0.01	0.4	1.2
Furniture & Fittings		0.06	0	0.4
Motor vehicles		0	0.6	0.9
Plant & Machinery		1.9	40.1	22.7
thereof	Open pits	0.02	23.4	5.4
	Underground	0.2	1.6	1.6
	Mills	1.2	3.5	5.2
	TLP	0.5	9.1	9.9
	Other	0.02	2.6	0.7
Total		**2.3**	**48.6**	**28.9**

Table 4-38 shows the KCM LOM projections for the balance of Nchanga sustaining capital expenditure in 2005-06 as of August 2005, split between the individual operations. These amounted to US$46 M over and above the capital already committed for 2005-06.

Table 4-38 Nchanga Sustaining Capital Expenditure

Section	Cap Ex (M$)
Underground	3.148
Open pits incl. Fitwaola	9.940
Concentrators	2.030
TLP	26.170
Engineering	4.520
Total	**45.809**

In August 2005 the Nchanga concentrator was an old plant and much of its equipment was approaching the end of its serviceable life. Items with a long, but not indefinite life, such as mill girth gears, crusher main frames, screen side frames, bin and bunker plate work, would need replacement. However, some of the equipment had become obsolete and direct replacements would be hard to obtain.

The TLP was much newer than most of the other Company process plants in August 2005, but was still over 30 years old, and even the youngest parts were 20 years old. Hydrometallurgical plants do not have the durability of concentrators, mainly because of the impact of scaling and corrosion. Pumps, pipework and valves have to be replaced. Steel work suffers from corrosion, tankhouse crane rails wear and roofing has to be replaced. Over time instrumentation becomes obsolete and has to be re-engineered as it became unserviceable.

Whereas, there are still a number of specific items requiring replacement or refurbishment it should be noted that 2005-06 represents a significant increase in the sustaining capital expenditure over previous years where KCM has endeavoured, under Vedanta's influence, to address short term plant and equipment problems.

With limited mine life remaining, IMC considered that there would be a balance between acceptable, but not optimal, operational efficiency and capital expenditure.

Table 4-39 below shows the annual sustaining capital phased projections from the KCM LOM which IMC has retained in its Operational Plan projections. It reflects the declining profile that would be expected towards the end of mining operations and we would expect a buyer in August 2005 to adopt the same approach in its Company valuation.

Table 4-39 Nchanga Sustaining Capital Phasing Comparison

	0	1	2	3	4	5	6	7
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
	Proj	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**
KCM LOM Projections								
Capital (US$ M)	54.4	20.0	10.0	5.0	5.0	5.0	5.0	
IMC Operational Plan Projections								
Capital (US$ M)	54.4	20.0	10.0	5.0	5.0	5.0	5.0	
Variance								
Capital (US$ M)								

4.9.5.2 Project Capital

In August 2005, the only capital project at Nchanga was the 500 tpd sulphur burning acid plant, which was partially constructed and due to start production in October 2005. All the capital had been approved and committed by the Valuation Date and can be seen in the 2005-06 projection in Table 4-39 above.

4.9.6 Environmental Costs

4.9.6.1 Current Non- Compliance

Section 4.6 identified certain environmental non-compliance issues at Nchanga, mainly associated with water management and discharge, which would have been current in August 2005. The cost of rectifying these problems is insignificant compared with the closure and rehabilitation requirements, and IMC has rolled them together as described below.

4.9.6.2 Closure and Remediation

Table 4-40 below shows the environmental remediation costs post closure of each Nchanga operation were not identified separately in the KCM LOM, and were not included in the sustaining capital. IMC has estimated these costs to total approximately US$34 M and has spread this cost over a nine year period from 2005-06 to 2014-15, with a small on-going annual commitment thereafter. We would have expected a responsible buyer to adopt and make similar provisions within its valuation.

Table 4-40 Nchanga Progressive Rehabilitation, Decommissioning and Closure Costs

Area	Total (US$ M)
Surface Mining	2.0
Underground Mining	1.8
Waste Rock Dumps	7.8
Plant Area Buildings and Services	12.8
Tailings Facilities	7.0
Water	0.5
Total	**31.9**
Ongoing Monitoring	2.1
Grand Total	**34.0**

4.10 Upside Potential

4.10.1 Resources

KCM Owned

At Nchanga, where the orebodies outcrop or are close enough to the surface to be worked by open pit methods, there are a number of small satellite pits which could have economic value depending mainly on the copper price. Table 4-8 above shows 82.41 Mt of KCM owned inferred resources with 1.34% TCu and 0.84% ASCu in the Mimbula and Chingola - ACE Open Pits which can be considered as future upside potential once a suitable processing method has been developed. IMC considers that these inferred resources with only 0.5%AICu would be economically marginal to extract, transport and process in the Nchanga concentrator. The acid soluble copper would benefit the economics but would require a heap leach type of approach, like the CRO. Unlike the CRO the ore would have to be mined and transported which is unlikely to be economic. We have therefore discounted these resources from any upside potential.

Third Party

Mwambashi B is a small deposit with oxide ore near the surface and sulphide ore at depth which would probably be uneconomic to extract on a standalone basis as a new build concentrator could not be justified. It would seem more logical to truck ore 26 km to the plants at Nchanga for processing, especially with the hydrometallurgical processing capacity available at the TLP. In August 2005 the deposit was owned by African Rainbow Minerals, now Teal Resources, and IMC understands that initial discussions to joint venture the extraction of this resource have already been held.

4.10.2 Concentrator Short Term Investment

There may be some short term cost effective improvements that could be made to the concentrator. Although they would not have a major impact on a buyer's valuation in August 2005, they could have a very short payback period and actually reduce operating cost or improve operational efficiency. Some examples noted by IMC in discussion with the process management team were.

- Extending the rougher flotation circuit.
- Replacement and upgrading of the belt filters

5 NKANA BUSINESS UNIT

5.1 Facilities

At the Valuation Date the KCM facilities at Nkana consisted of a copper smelter constructed in the 1930s and a copper refining tankhouse built in the 1950's.

5.1.1 Nkana Smelter

The Nkana smelter was constructed in the 1930's using the then current technology, and in August 2005 remained unchanged apart from some minor modifications. It received copper concentrates from the KCM concentrators at Konkola and Nchanga by road and rail from 40 to 50 km away. In addition, pyrite was delivered by road from the Nampundwe mine approximately 600 km south of the smelter.

5.1.2 Smelter Description

In August 2005 the Nkana smelter operated two reverberatory furnaces and one El Teniente converter as primary smelting units, and four Pierce Smith converters with four anode furnaces. The estimated production capacity of the smelter was 150,000 tonnes of copper per year.

Concentrates were received from Konkola, Nchanga and Chibuluma and, occasionally, from other sources either in road or rail cars. Pyrite concentrate was received from Nampundwe mine. The concentrate shed had the capacity to store up to 35,000 tonnes of concentrate. Silica flux and lime rock flux were received already crushed and passed through the flux crushing plant which was also used for reprocessing reverts (re-cycled smelter materials). Coal and heavy fuel oil (HFO) were received in the material handling area with HFO arriving in road tankers. Coal was received, crushed, dried and pulverised in five air swept ball mills and pneumatically conveyed to bins before use.

Concentrate was reclaimed, blended and, as necessary, dried before feeding to the furnaces. For the reverberatory furnaces, the concentrate was normally charged directly to the furnaces if the moisture did not exceed 8%. Concentrate to be fed to the El Teniente converter was reduced to bone dry in a flash dryer.

Two reverberatory furnaces were in use for primary smelting. One was coal fired and the other was fired with oxygen and heavy fuel oil. Primary air was used to blow the pulverised coal into the furnace and provided the main source of air for combustion. Oxygen enriched secondary air was used to ensure complete combustion. Matte was tapped and charged to the Pierce Smith and El Teniente converters. Slag was skimmed off into pots drawn by electric locos to the slag dump. Off-gas from the coal fired reverberatory furnace was used to generate steam in a boiler before the gas was cleaned and discharged. The steam was used to heat electrolyte in the refinery tankhouse. Off-gas from the oxy-fuel furnace was spray cooled with water and cleaned before being discharged to the atmosphere.

The El Teniente converter was similar to a Pierce Smith converter, but longer and equipped with ports between banks of tuyères, through which concentrate was blown into the furnace. The furnace was charged with matte from the reverberatory furnaces and bone dry concentrate was blown in through the ports. "Green" concentrate was blown on to the surface of the metal in the furnace through one end. Heat was generated through the combustion of iron and sulphur and a high grade matte, known as white metal with 74 – 76% Cu, was produced and transferred to the Pierce Smith converters. About half of the concentrate feed to the Nkana smelter was fed to the El Teniente converter. The slag from the El Teniente converter contained 4 – 8% copper and 16 – 18% magnetite. This slag was returned to the reverberatory furnaces, where entrained droplets of white metal settled out and copper oxide was reduced using mill balls as a reductant.

White metal from the El Teniente converter and matte from the reverberatory furnaces was charged to the four Pierce Smith converters. The converters were heated by the heat of reaction from the oxidation of iron and sulphur in the furnace but were equipped with HFO burners to maintain temperature between cycles. The slag was returned to the reverberatory furnaces. Blister copper from the Pierce Smith converters was transferred in ladles to the anode furnaces. Gas from the El Teniente and Pierce Smith converters was cooled and cleaned and transferred to a single contact single absorption acid plant with the capacity to make up to about 200,000 t of sulphuric acid per year, when the smelter was treating the then current concentrate mix.

There were four anode furnaces, fired by heavy fuel oil. Each anode furnace had its own 22 mould casting wheel. The furnaces were charged with blister copper from the converters and compressed air lances were used to air the copper to oxidise residual sulphur in the blister copper. The furnaces were then poled using green eucalyptus or pine logs to reduce the oxygen content of the copper. The copper was then tapped into a launder that led to a casting ladle. The casting wheel rotated to present each mould to the casting ladle in turn. Casting was manually controlled by tipping the ladle to pour copper into each mould. The moulds were cooled by sprays and the anodes were then levered out of their moulds and hoisted into a water filled bosh tank to cool them before they were loaded into rail cars for despatch to the refinery. Normal commercial anodes weighed 285kg ± 5% and anodes for the starting sheet sections, which are wider and deeper, weigh 300kg ± 5%.

An oxygen plant was installed in 1967 for the enrichment of the air blast to the converters to improve their throughput. This plant, with a nominal capacity of 540t/d, was still in operation producing 350 to 400 tpd.

5.1.3 Smelter Condition

In August 2005 the Nkana smelter was an old plant, using old technology. Initially designed to process concentrate from the Nkana mine, where the mineralogy was dominated by chalcopyrite with significant pyrite, it had through its life been obliged to process increasing proportions of concentrate from Konkola and Nchanga, with much lower iron and sulphur content. The resulting energy deficiency was made good by increased fuel consumption and oxygen enrichment and by the use of pyrite concentrate.

The copper recovery, at around 92%, was low and the costs were high. To simply keep this plant running would have required a level of replacement capital expenditure not normally seen with a modern plant. At the heart of any conventional copper smelter, the crane aisle was essential to the movement of copper from stage to stage of the smelting process. The use of the El Teniente converter increased the number of crane movements. Differential settlement of the foundations of the aisle over its seventy year life had resulted in the beams that support the crane rails being considerably out of alignment. As these beams were tied in to the reverberatory furnace steel work, realignment was not a simple matter.

The physical quality of the anodes cast at Nkana was poor and this increased both the rate of recycling of anode scrap and the labour intensity of the refinery operation. It also reduced the current efficiency and therefore productivity of the refinery as well as causing the cathode quality to deteriorate. Modern smelters use automated ladles to cast anodes to ± 5kg. Modern casting wheels have a smoother action reducing the incidence of rolled edges and controlled mould temperature giving better surface quality. They are also much larger and commonly serviced by two or more anode furnaces. In August 2005, it was clear that capital expenditure in the order of US$10 to 20 million per year would be required to sustain operations at the Nkana smelter. Even with this expenditure, the copper recovery would remain around 92%, sulphur capture at about 70% and the plant would be expensive to operate. IMC considers that any buyer, taking even a medium term view, would think that replacement of the smelter would be a logical step.

5.2 Nkana Copper Refinery

The Nkana copper refinery at 60 years old was, in August 2005, the oldest in Zambia. Although the fundamental technology of copper refining remains unchanged since it was constructed, the materials of construction, design and materials handling aspects of modern refineries have changed to reduce the labour input.

5.2.1 Refinery Tankhouse

In August 2005 the Nkana refinery tankhouse was a large rectangular building divided into five longitudinal aisles. The centre aisle was narrower than the others and was used for the storage, pumping, heating and filtration of the electrolyte. The other aisles were served by electric overhead travelling cranes that could be moved from aisle to aisle as necessary. The tankhouse was divided transversely into four units, A, B, C and D, each powered by a separate transformer rectifier. Each unit had sixteen electrolytic sections and each section had 26 cells giving a total of 1,664 cells. Cathodes were made from starting sheets prepared in eight starting sheet sections, where 32 titanium cathodes were used in each cell. Copper was plated on to the rolled titanium cathode for 24 hours, after which the cathodes were removed and the thin sheet of copper was stripped manually from the cathode. The starting sheets were trimmed, rolled and assembled with loops and a hanger bar in a two starting sheet assembly machines, to provide the starter cathodes for the rest of the tankhouse. Units A and B had silicon rectifiers with a maximum current of 13,800 A. Units C and D were equipped with thyristor rectifiers with a maximum current of 20,500 A and were equipped for periodic current reversal (PCR), a technique that enabled high quality cathode to be produced at higher current densities, thus increasing the production capacity of the tankhouse.

Each section had two parallel rows of 13 cells which was isolated every 14 days and the cathode harvested. The anode scrap would be removed from one row of 13 cells and the anode slime removed from these cells before new anodes were charged. The cells at Nkana were made from reinforced concrete lined with lead. These were gradually being replaced with polymer concrete cells made from a sand filled resin that is acid resistant. This drastically reduced leakage of electrolyte and damage to the basement.

5.2.2 Refinery Condition

The tankhouse was operating at a cathode current efficiency of 89 – 90%. The target was 93%, but this was not achieved mainly because of the poor quality of the anodes. The annual capacity of the tankhouse in its August 2005 condition should have been about 177,000 t of cathode. After reconstruction of D unit, the annual capacity of the tankhouse should be about 200,000 t of cathode.

The tankhouse, despite its considerable age, was in surprisingly good condition. The basement flooring and structural concrete had been extensively refurbished. The gradual replacement of lead lined cells with polymer concrete cells should reduce the rate of acid attack. The tankhouse differed from a modern tankhouse in being highly labour intensive.

5.3 Management

In August 2005, KCM was one of the largest employers in Kitwe and if it was necessary to close the Nkana smelter it would have been desirable to retain the tankhouse refinery so as to minimise the number of lay-offs.

The management team at Nkana in August 2005 comprised long term former ZCCM employees led by an expat operations manager. The senior IBU team and the general operational management team were in daily and constant hands-on control of the operations. All the members of the KCM Nkana management team who were in contact with IMC appeared to be well informed, competent and confident in their positions.

5.4 Infrastructure

5.4.1 Electrical Power

The electricity supply was, in August 2005, provided by CEC from two main 66/11 kV substations jointly operated by CEC and KCM and with each responsible for their own equipment. The two substations were interconnected for security of supply. The KCM equipment in the substations was 20 years old but well maintained with an ongoing refurbishment programme.

In addition to the agreement to supply electrical power to KCM as a whole, a second agreement existed between ZCCM (Smelter Co) and CEC, again entered into in 2000 for a period of 20 years. The terms of this second agreement were similar to the main KCM agreement but with an initial obligation for CEC to meet a maximum demand of 75 MW with a progressive reduction if KCM did not purchase the Nkana smelter. As this had turned out to be the case, the maximum demand under Smelter Co contract remained at 75 MW in accordance with the agreement. The second agreement also made provision for a certain capacity to be protected, for the safety of the operations, during any periods of load shedding.

The cost structure of the Nkana power supply agreement is discussed in the IMC operational cost projections in Section 5.7.2.2 below.

5.4.2 Water Supply

The design of the water supply system arose from the time when the smelter was part of the neighbouring Mopani process plant and formed one large complex. In August 2005, Mopani had a pumping station on the Kafue River and pumped the water directly to its plant. It then provided water to the KCM plant by a series of pipelines that were part of the original complex.

There was no reservoir in the water supply system other than the storage built into individual processes and at times Mopani shut the supply off for maintenance reasons, causing KCM problems.

5.4.3 Transportation

The main transport requirements for the plant were the importation of concentrate from Nchanga and Konkola and the export of cathode. The main railway to Lusaka passed through Kitwe and linked the plant to Chingola. There was a spur off this line to the plant which was used for transport of goods in and out of the plant; however, the railway was not in good condition and the provision of trains was unreliable and subject to en-route theft.

5.5 Environment

5.5.1 Surface Water

In August 2005, discharge limits were stipulated in the Third Schedule, Regulation 5 (2) of the Water Pollution Control (Effluent and Waste Water) Regulations 1993, SI No. 72, with which Nkana was only compliant for a few months of 2005

To ensure compliance the following measures would have to be taken:

- Repair and maintenance of all drains around the site;
- Ensure all bunding had sufficient capacity to contain any leakages; and
- Removal from the site of waste which was causing surface and stormwater runoff contamination and elevated levels of TSS, TCu and TCo.

5.5.2 Groundwater

A year long external audit in progress during August 2005 made the following recommendations:

- Repairs to the bunding and flooring at the acid plant with acid proof materials to contain spills;
- Hydrocarbon analysis should be undertaken to assess the contamination effects of leakages into the groundwater;
- Soil contamination should be studied; and
- A groundwater monitoring programme should be implemented.

5.5.3 Air Quality

The emissions from the reverberatory stacks were consistently out of compliance in terms of SO_2 and dust emissions.

To ensure compliance with the ECZ standards the following mitigation measures would have to be implemented:

- Maintenance and repair of both the acid plant and smelter;
- Replacement and installation of new hoods to capture fugitive gases.

Even if these measures were implemented, to achieve compliance could be very difficult due to the infrastructure and technology used. In order to achieve full compliance the acid plant would have to be upgraded from a single to a double absorption plant.

5.6 Projects

5.6.1 Smelter Upgrade

In January 2005 the KCM Board of Directors approved a US$60 M refurbishment programme for the existing Nkana smelter to maintain the status quo without any production or efficiency improvements. This was followed by a paper submitted to the May 2005 Board meeting considering the future smelting options.

KCM management considered that the Konkola and Nchanga concentrates could not be smelted alone in the El Teniente converter (CT) due to lack of energy and the concentrates' chemical composition. Hence, some of the KCM concentrates were smelted in the reverberatory furnaces and the matte produced was taken to CT to provide the energy required for smelting additional concentrate in the CT. White metal from the CT was taken to the Pierce Smith converters to produce blister copper (98% Cu) and was further fire refined to 99.5% in Anode furnaces. KCM considered that under this configuration not involving concentrate swaps with Mopani but with the purchase of Kansanshi / Chibuluma concentrate, the smelter had a capacity of 206,000 tpa and the following drawbacks:

- Due to low energy levels, it was not possible to treat KCM concentrates on a stand alone basis and, if blended with pyrite, the operating capacity of the CT would be reduced;
- There was significant material movement within the plant, including slag, matte, white metal and blister which largely depended on cranes and the slag handling system;
- Low product recoveries of copper and sulphur; and
- Very high energy, operating and maintenance cost (> USc20 per lb)

KCM smelting objectives:

- Selection of a suitable process for treating Konkola and Nchanga low energy concentrate;
- Phasing out the reverberatory furnaces;
- Simplification of the process for improved material flow, increased efficiency and reduced operating costs;
- Ability to treat expanded output in line with KDMP, up to 265,000 tpa copper in concentrate from Konkola, Nchanga Open pit and Nchanga underground;
- Ability to exploit opportunities for treating purchased concentrate from other mines in Zambia such as Kansanshi, Chibuluma, NFC and Lumwana, up to an aggregate of 120,000 tpa copper in concentrate; and
- Expand refinery capacity to match smelting capacity.

KCM then considered three strategic options on a note submitted to the Board prior to the Valuation Date:

1. Status Quo — Continue with existing plant with some essential equipment upgraded
2. Isasmelt furnace — Install a new Isasmelt furnace facility, identical to the new Tuticorin plant, as primary smelting vessel. This would treat concentrate with pyrite to produce matte and the CT would continue to be used to treat matte and concentrate together.
3. Direct Blister — Install an Outokumpu direct blister furnace with the ability to treat the low energy Konkola and Nchanga concentrate on a stand alone basis.

Option 1 was considered by KCM to be unviable (albeit it formed the basis of the subsequent LOM plan) as it could not meet the smelting throughput requirements resulting from the combined production of low energy concentrates it had projected from Konkola and Nchanga.

Options 2 and 3 were presented to the Board with option 3 being preferred as a more suitable technical solution to meet the projected capacity requirements. Subsequently in October 2005 the Board approved the upgrade of the Nkana smelter with a new Outokumpu Flash to Blister furnace to be located adjacent to the existing smelter on the site of the disused Nkana cobalt plant. This would enable the new smelter furnace to use the existing anode furnaces, concentrate dryer and storage facilities. The new smelter would have a capacity of 201,000 t of new copper per year (considered adequate for the projected concentrate throughputs) and would use the adjacent copper refinery. In Section 5.8.1 we discuss the approach that a prospective buyer of KCM would have taken in August 2005.

5.6.2 SO_2 Acid Plant

During 2004 the KCM board of directors considered the merits of a new acid plant at Nkana and approved US$12.4 M for this purpose in June 2004. However, by September 2004 the project had been relocated to Nchanga as a new build sulphur burning plant as described in Section 4.7.1. In May 2005 a further US$25.4 M was approved to improve the then SO_2 capture at Nkana from 50% or 750 tpd to 90% or 1,300 tpd, but the project had not been progressed by August 2005.

5.7 IMC Forecasts

Starting from KCM LOM plan for Nkana IMC has, where appropriate, made modifications based on the information available and our understanding of the assets as of 12th August 2005. Our approach has been to produce a set of projections which we consider achievable and optimal and which we believe a buyer might reasonably be expected to have applied when valuing Nkana at 12th August 2005

5.7.1 Processing Plan

IMC has included an upgraded smelter with an Outokumpu blister section in its Operational plan as we consider it to be an effective approach to provide adequate smelting capacity for the projected concentrate production from Nchanga and Konkola with limited capital expenditure. In addition to the increased capacity this upgrade will provide recovery and cost improvement benefits which IMC has included in its projections. Whereas, the KCM LOM plan has included the capital cost of a smelter expansion but only increased the capacity whilst projecting operating costs from the 2005-06 Budget.

In the 3 years and 4 month prior to the Valuation Date the Nkana Smelter had been able to process all of the concentrate that had been delivered to it by blending the low energy KCM concentrates with high energy externally swapped concentrates and or adding pyrite to the blend. The future annual copper metal production from the KCM LOM plan, based on low energy KCM concentrates only, is projected to rise to 196,000 t in 2008/09 and remain at approximately that level until 2014/15, when it declines to 165,000 t. Based on the performance history shown in Table 5-1 below, the present smelter would not have the capacity to achieve this production rate with low energy concentrates alone without an increase in capacity and additional energy input.

Table 5-1 Nkana Smelter Performance History

	2002 (t)	2003 (t)	2004 (t)	2005 Jan – Mar(t)	2005 Apr – July (t)
Nchanga HG Concentrate Treated at Nkana	105,444	101,029	132,966	26,704	48,014
Nchanga MG Concentrate Treated at Nkana	63,094	42,655	0	0	0
Konkola Concentrate Treated at Nkana	47,786	74,399	55,043	17,991	42,490
Nkana Concentrate treated at Nkana	106,030	47,239	97,557	31,001	33,222
Nkana Concentrate Treated at Nkana - Toll		1,148			
NFC Africa Mining Concentrates treated - Purchased		3,198	30,813	6,860	9,146
Other Concentrate Purchased				7,628	23,028
Total Concentrate Treated	322,354	269,668	316,379	82,556	115,900
PRIMARY KCM COPPER	76,607	100,172	117,389	30,460	33,626

TOTAL	108,605	100,524	117,389	30,460	33,626
GROSS COPPER	150,008	129,874	148,939	36,513	39,194
Recovery on new copper (%)	92.17	92.08	93.52	95.71	94.6
KCM Cathode produced (Tonnes)	**75,462**	**88,962**	**107,964**	**21,480**	**36,011**

In the three years and 4 months prior to the Valuation Date finished copper production had been well below the capacity of the refinery which allowed the refurbishment of discrete areas of the refinery tankhouse. Table 5-2 below summarises the performance of the Nkana copper refinery over the period 2002 to 2005.

Table 5-2 Nkana Refinery Tankhouse Performance History

	Item	2002	2003	2004	2005 Jan - March	2005 Apr - July
KCM Cathode produced	t	**75,462**	**88,962**	**107,964**	**21,480**	**36,011**
Cathode Despatchability	%	98.3	98.5	98.0	97.7	97.8
Anode Scrap rate	%	17.4	15.3	15.8	15.2	15.4
Current efficiency - DC	%	92.5	95.6	91.8		
Current efficiency - PCR	%	91.3	93.1	90.6		

Table 5-3 shows the first six years of the Nkana KCM LOM plan and IMC's Operational plan processing projections and contains the critical ramp up period at Konkola, whilst Table 5-4 shows the steady state period up to year 13 together with the final year and totals. Both tables show the variances between the IMC and KCM projections of:

- KCM concentrate produced at Konkola and Nchanga;
- Purchased concentrate;
- Total concentrate treated;
- Total contained copper;
- Primary copper produced; and
- Copper recovery.

The Nkana smelter is a processing unit which can only smelt the concentrates supplied to it and the production projections can only reflect the Konkola and Nchanga projections as no concentrate purchases were predicted after 2005-06 as all the existing purchase contracts had expired. IMC's projections essentially mirror the KCM LOM at Nchanga so any variances at Nkana would follow the Konkola variances, which were associated with (a) the profiles of the construction period and the consequential build up of mined ore to steady state contained in both the KDMP FS and the KCM LOM plan, (b) the concentrate production grade projected in the KCM LOM plan where IMC and KDMP FS have projected 41% or 6% higher and (c) the effect of upgrading the smelter where IMC has project a 1% increase in recovery to 95% and a change in the balance of energy source from coal and fuel to electrical power, shown in Table 5-10 and Table 5-13.

IMC considers that a buyer of the assets in August 2005 would be likely to adopt the Nkana operating parameters contained within the KCM LOM plan but the projections would be expected to show the effects of the KDMP phasing and concentrate grade from Sections 3.5.1 and 3.5.2 as well as the smelter upgrade.

Table 5-3 Nkana Processing Projection Comparison, Years 1 to 6

		0			1	2	3	4	5	6
		2005	Aug 05-Mar 06	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
		Actual	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
KCM LOM Plan Projections Actual 2005 = April - September										
Concentrate produced	kt	147.4	222.0	369.3	411.3	456.3	595.5	579.2	582.7	580.7
Contained copper	t	54,008	80,164	134,172	143,968	159,701	208,431	202,736	203,951	203,252
Purchased concentrate	kt	50.3	6.0	56.3						
Concentrate treated	kt	184.0	228.0	412.0	411.3	456.3	595.5	579.2	582.7	580.7
Contained copper	t	64,100	81,987	146,087	143,968	159,701	208,431	202,736	203,951	203,252
Primary copper	t	55,013	77,976	132,989	135,330	150,119	195,926	190,572	191,714	191,057
Smelter Cu recovery	%	85.8	95.1	91.0	94.0	94.0	94.0	94.0	94.0	94.0
IMC Operational Plan Projections Actual 2005 = April - July										
Concentrate produced	kt	90.5	245.9	336.4	380.5	364.4	386.2	477.9	544.5	482.5
Contained copper	t	31,764	89,106	120,871	144,557	142,122	154,495	193,439	222,141	197,933
Purchased concentrate	kt	32.2	48.0	80.2						
Concentrate treated	kt	115.9	293.9	409.8	380.5	364.4	386.2	477.9	544.5	482.5
Contained copper	t	39,194	103,506	142,700	144,557	142,122	154,495	193,439	222,141	197,933
Primary copper	t	33,626	97,296	130,922	135,884	133,595	146,770	183,767	211,034	188,037
Smelter Cu recovery	%	85.8	94.0	91.7	94.0	94.0	95.0	95.0	95.0	95.0
Variance										
Concentrate produced	kt	N/A	N/A	-32.9	-30.8	-91.8	-209.3	-101.4	-38.2	-98.2
Contained copper	t	N/A	N/A	-13,302	589	-17,579	-53,937	-9,298	18,190	-5,318
Purchased concentrate	kt	N/A	N/A	23.9						
Concentrate treated	kt	N/A	N/A	-2.2	-30.8	-91.8	-209.3	-101.4	-38.2	-98.2
Contained copper	t	N/A	N/A	-3,387	589	-17,579	-53,937	-9,298	18,190	-5,318
Primary copper	t	N/A	N/A	-2,067	554	-16,524	-49,155	-6,806	19,320	-3,020
Smelter Cu recovery	%	N/A	N/A	0.7			1.0	1.0	1.0	1.0

Table 5-4 Nkana Processing Projection Comparison, Years 7 to 13 and 29

		7	8	9	10	11	12	13	29	Total
		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2034-35	
		Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
KCM LOM Plan Projections										
Concentrate produced	kt	580.3	577.4	504.1	504.1	504.1	504.1	504.1	533.4	15,840.4
Contained copper	t	203,120	202,103	176,443	176,443	176,443	176,443	176,443	186,706	5,546,623
Purchased concentrate	kt									6.0
Concentrate treated	kt	580.3	577.4	504.1	504.1	504.1	504.1	504.1	533.4	15,846.5
Contained copper	t	203,120	202,103	176,443	176,443	176,443	176,443	176,443	186,706	5,548,446
Primary copper	t	190,933	189,977	165,856	165,856	165,856	165,856	165,856	175,503	5,216,448
Smelter Cu recovery	%	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0
IMC Operational Plan Projections										
Concentrate produced	kt	486.9	485.0	493.8	493.8	430.3	430.3	430.3	455.4	13,588.7
Contained copper	t	199,686	198,954	202,562	202,562	176,443	176,443	176,443	186,706	5,533,870
Purchased concentrate	kt									48.0
Concentrate treated	kt	486.9	485.0	493.8	493.8	430.3	430.3	430.3	455.4	13,636.7
Contained copper	t	199,686	198,954	202,562	202,562	176,443	176,443	176,443	186,706	5,548,270
Primary copper	t	189,702	189,007	192,434	192,434	167,621	167,621	167,621	177,370	5,266,954
Smelter Cu recovery	%	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	94.9
Variance										
Concentrate produced	kt	-92.4	-10.3	-10.3	-73.8	-73.8	-73.8	-92.4	-78.1	-2,251.7
Contained copper	t	-3,149	26,120	26,120	0	0	0	-3,149		-12,754
Purchased concentrate	kt									42.0
Concentrate treated	kt	-92.4	-10.3	-10.3	-73.8	-73.8	-73.8	-92.4	-78.1	-2,209.8
Contained copper	t	-3,149	26,120	26,120	0	0	0	-3,149		-176
Primary copper	t	-970	26,578	26,578	1,764	1,764	1,764	-970	1,867	50,507
Smelter Cu recovery	%	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9

Figure 5-1 below shows IMC's projection of the concentrate feed and the copper and acid production profile, which shows the effects of stopping concentrate purchase and the production profile of KDMP.

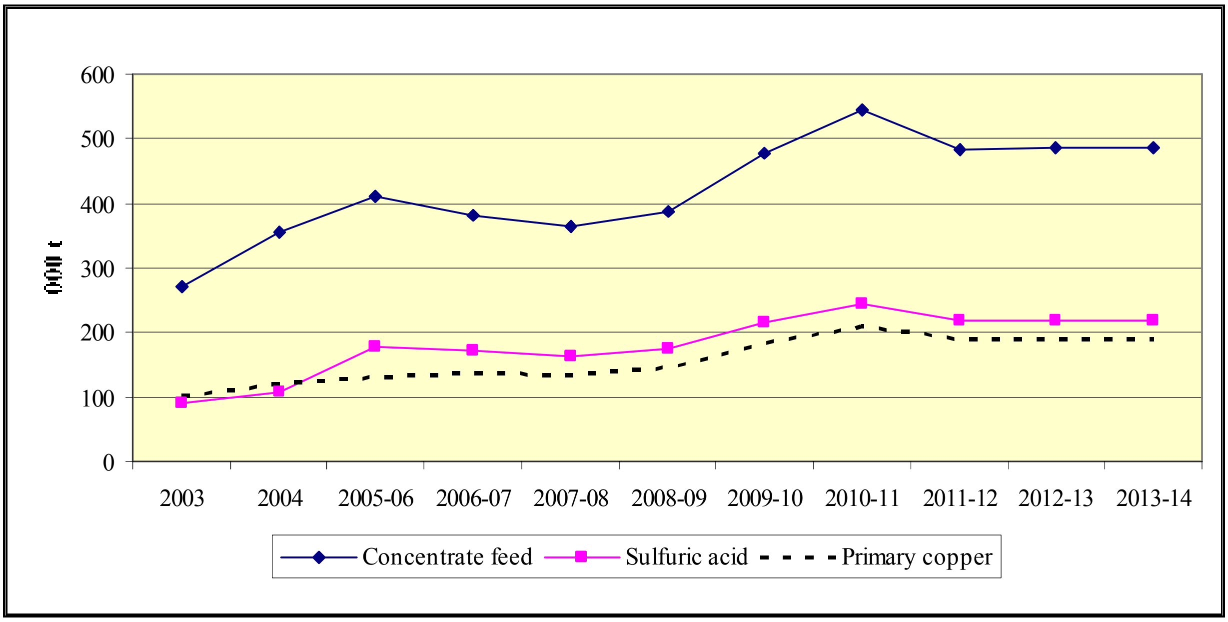


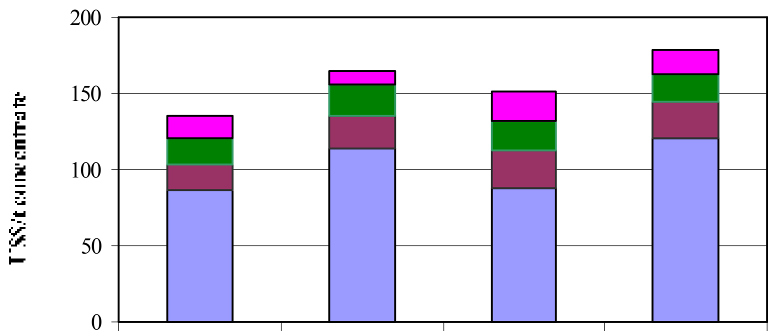
Figure 5-1 IMC Nkana Production Forecast

5.7.2 Operating Costs

In the KCM LOM plan Nkana operating costs are split between the following cost centres:

- Smelter
- Refinery
- Acid Plant
- Administration

Figure 5-2 below shows the historic operating costs per tonne of concentrate for the two complete years and the four months prior to the Valuation Date, together with those budgeted for the financial year 2005-6, in each case split between these four cost centres.



	2,003	2,004	2005-06 4 Mon budget	2005-06 4 Mon actual
Administration	14.81	8.59	19.15	16.04
Acid plant	17.30	21.01	19.93	17.74
Refinery	17.05	20.95	24.20	23.63
Smelter	85.93	113.89	87.86	120.70

Figure 5-2 Nkana Operating Cost History

Figure 5-3 below shows the distribution of operating costs by category for the whole Nkana operation for the four month period immediately prior to August 2005. The major cost items were coal and fuel, manpower, power, other and repair and maintenance in descending order. In producing its own forecasts, IMC has concentrated on the first four categories, which account for approximately 74% of the total cost four the April to July 2005 period.

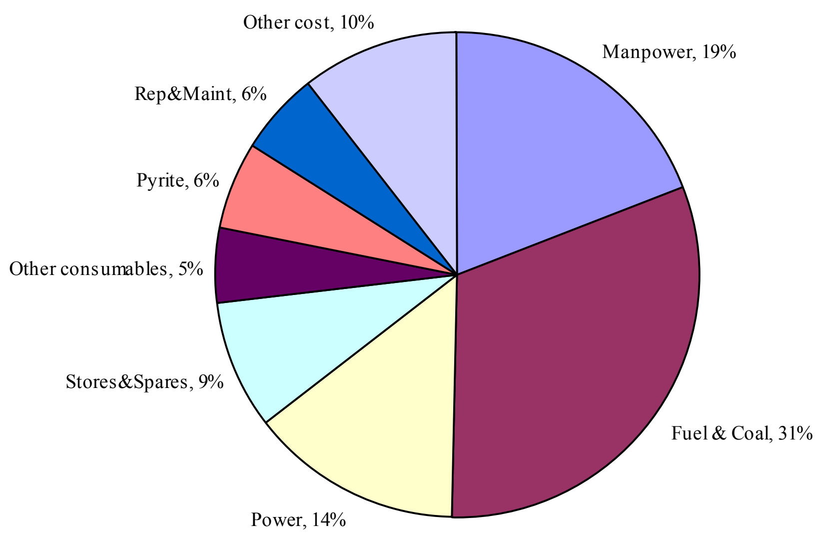


Figure 5-3 Operating Cost Distribution

Table 5-5 to Table 5-7 below show a breakdown of the operating cost history for the two years and four months prior to the Valuation Date for the smelter, refinery and acid plant. It should be noted that the variance to budget figures have a cost and production component and should be viewed against a 23% shortfall in concentrate smelte, a 14% shortfall in finished cathode and a 43% shortfall in acid production for the 4 month period. IMC has used these historical operating costs in conjunction with the KCM LOM, which itself reflects history, as the starting points for its cost projections, which are discussed individually or in groups in Section 5.7.2 below. We would have expected a buyer to use the same starting point for its valuation purposes.

Table 5-5 Nkana Smelter Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05	Variance
	Actual ($/t conc)	**Actual ($/t conc)**	**Actual ($/t conc))**	**Budget ($/t conc)**	**Apr-Jul 05**
Concentrate treated	**269,667**	**355,724**	**120,662**	**157,293**	**-23%**
Manpower	**10.33**	**15.55**	**18.51**	**15.77**	**17%**
Operations					
- Fuel	18.56	26.50	35.06	11.50	205%
- Chemicals	0.57	0.58	0.51	0.36	42%
- Lime	0.52	0.69	0.69	0.87	-21%
- Coal	14.08	13.15	17.67	13.26	33%
- Refractory	11.72	8.09	2.48	2.75	-10%
- Consumables	3.61	2.19	2.55	2.14	19%
- Stores & Spares	2.01	9.41	12.05	9.95	21%
- Power	0.75	12.69	14.15	11.52	23%
- Labour Hire	1.68	0.61	0.22	0.03	600%
Sub-total	**53.52**	**73.91**	**85.37**	**52.39**	**63%**
Repair & Maintenance					
- Stores & Spares	1.87	1.19	1.11	2.21	-50%
- Mechanical	5.13	7.04	3.55	3.32	7%
- Electrical	4.71	4.56	3.71	3.95	-6%
Sub-total	**11.71**	**12.80**	**8.37**	**9.48**	**-12%**
Operating Lease & Hire	0.02	5.29	3.49	2.69	30%
Operating Projects	0.00	3.47	0.55	5.04	-89%
Others	10.35	2.88	4.40	2.50	76%
Sub-total	**10.37**	**11.64**	**8.44**	**10.23**	**-17%**
Total	**85.93**	**113.89**	**120.70**	**87.86**	**37%**

Note 2003 costs may be incomplete

Table 5-6 Nkana Refinery Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05	Variance
	Actual ($/t cathode)	**Actual ($/t cathode)**	**Actual ($/t cathode)**	**Budget ($/t cathode)**	**Apr-Jul 05**
Cathode Produced	**101,257**	**118,910**	**38,750**	**45,271**	**-14%**
Manpower	**12.01**	**16.91**	**22.04**	**17.72**	**24%**
Operations					
- Chemicals	0.16	1.43	1.39	1.36	2%
- Consumables	5.30	3.62	3.40	3.12	9%
- Stores & Spares	6.39	6.08	7.97	11.50	-31%
- Power	15.08	22.94	25.68	22.31	15%

- Labour Hire	0.27	0.28	0.20	0.01	2161%
Sub-total	**27.19**	**34.34**	**38.65**	**38.30**	**1%**
Repair & Maintenance					
- Stores & Spares	1.12	1.51	1.17	2.82	-58%
- Mechanical	4.98	5.34	6.82	5.18	32%
- Electrical	1.25	1.93	0.69	1.02	-32%
Sub-total	**7.35**	**8.78**	**8.69**	**9.02**	**-4%**
Equipment Lease & Hire	1.03	0.91	1.38	0.79	76%
Operating Projects	0.00	0.06	1.15	16.83	-93%
Others	-2.17	1.67	1.67	1.42	18%
Sub-total	**-1.14**	**2.64**	**4.20**	**19.03**	**-78%**
Total	**45.42**	**62.66**	**73.57**	**84.07**	**-12%**

Note 2003 costs may be incomplete

Table 5-7 Nkana Acid Plant Operating Cost History

	2003	**2004**	**Apr-Jul 05**	**Apr-Jul 05**	**Variance**
	Actual ($/t)	**Actual ($/t)**	**Actual ($/t)**	**Budget ($/t)**	**Apr-Jul05**
Acid production	**91,502**	**106,651**	**34,536**	**60,484**	**-43%**
Manpower	**4.19**	**7.22**	**7.88**	**4.19**	**88%**
Operations					
- Fuel	11.76	15.87	22.19	10.85	105%
- Chemicals	0.57	1.51	0.55	1.11	-51%
- Water	4.17	3.91	3.94	2.27	73%
- Consumables	6.70	1.66	0.30	1.36	-78%
- Stores & Spares	1.27	2.69	1.11	2.88	-61%
- Power	10.52	17.43	15.75	12.12	30%
- Labour Hire	2.81	0.59	-0.11	0.01	-1517%
Sub-total	**37.80**	**43.66**	**43.73**	**30.59**	**43%**
Repair & Maintenance	0.00	0.00	0.00	0.00	0.00
- Stores & Spares	4.79	0.46	0.03	0.48	-93%
- Mechanical	2.67	6.94	2.42	2.53	-4%
- Electrical	0.90	2.29	1.16	3.69	-69%
- Heavy Vehicles	0.00	0.00	0.00	0.00	0.00
Sub-total	**8.36**	**9.68**	**3.62**	**6.70**	**-46%**
Vehicle & Equipment Hire	0.61	7.30	0.01	8.15	-100%
Operating Projects	0.00	0.35	5.47	0.16	3383%
Others	0.03	1.86	1.25	2.04	-39%
Sub-total	**0.64**	**9.50**	**6.73**	**10.34**	**-35%**
Total	**50.99**	**70.07**	**61.97**	**51.82**	**20%**

Note 2003 costs may be incomplete

5.7.2.1 Factors Determining Operating Costs

IMC has developed forward projections for each operating cost category based on the principles described in Section 3.5.3.2 above. Cost categories exhibit the same currency distribution as were set out for Konkola in Table 3-12 and the estimated fixed/variable cost proportions are shown in Table 5-8 and Table 5-9 below.

Table 5-8 Nkana Smelter Operating Costs Fixed and Variable Split

	Cost Apr-Jul 05 (k$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t conc)
Manpower	2,234	90%	2,010	1.851
Operations				
- Fuel	4,231	10%	423	14.918
- Chemicals	61			0.509
- Lime	83			0.687
- Coal	2,132			17.666
- Refractory	299	30%	90	1.734
- Consumables	308	40%	123	1.533
- Stores & Spares	1,454	70%	1018	3.615
- Power	1,707	50%	854	7.074
- Labour Hire	27	100%	27	-
Sub-total	**10,302**			
Repair & Maintenance				
- Stores & Spares	133	60%	80	0.442
- Mechanical	429	60%	257	1.421
- Electrical	447	60%	268	1.483
Sub-total	**1,009**			
Operating Lease & Hire	421	30%	126	2.444
Operating Projects	66	80%	53	0.110
Others	531	80%	425	0.880
Total	**14,563**	**45%**	**6,553**	56.37

Table 5-9 Nkana Refinery Operating Costs Fixed and Variable Split

	Cost Apr-Jul 05 (k$)	Fixed Proportion	Fixed Element (M$)	Variable Cost ($/t Cu)
Manpower	854	90%	769	2.37
Operations				
- Chemicals	54	10%	5	1.35
- Consumables	132			3.66
- Stores & Spares	309	40%	124	5.15
- Power	995			27.63
- Labour Hire	8			0.22
Sub-total	**1,498**			
Repair & Maintenance				
- Stores & Spares	46	60%	28	0.51
- Mechanical	264	60%	158	2.94

- Electrical	27	60%	16	0.30
Sub-total	**337**			
Operating Lease & Hire	54	10%	5	1.34
Operating Projects	44	30%	13	0.86
Others	65	30%	20	1.26
Total	**2,851**	**40%**	**1,140**	47.58

5.7.2.2 Operating Cost Projections

IMC has concentrated on the most likely projections for the 4 highest cost categories shown in Figure 3-4 above which together accounted for 74% of the operating costs in the 4 month period just prior to the Valuation Date. For each of these it has reviewed the KCM LOM projection to determine whether these reasonably reflect what a buyer in August 2005 might have adopted and, if not, made appropriate amendments.

Coal and Fuel

In August 2005 coal and fuel was the main source of energy for melting concentrates and second stage smelting, and constituted the largest cost category. It accounted for 31% of the process operating costs at Nkana, and was therefore throughput dependant. Table 5-10 below shows the comparison between the KCM LOM plan and the IMC operating plan where we have projected from actual coal and fuel costs and reduced the consumption by 10% from 2008-09 when the new blister section becomes operational. Conversely, the KCM LOM figures are based on a budget which was not attained in the first four months of 2005-06 and IMC consider to be ambitious.

Table 5-10 Nkana Coal and Fuel Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of Copper)		127	
Annualised Coal and Fuel Cost (US$ per tonne of Copper)			
2005-06	99	150	+51
2006-07	75	119	+44
2007-08	74	117	+42
2008-09	72	103	+31
2009-10	72	100	+27
2010-11	72	98	+26

Stores and Spares

In the April to July 2005 four month period stores and spares accounted for 9% of the process operating costs at Nkana. These costs have a 40 to 70% fixed cost element depending on whether they are associated with operations or repairs and renewals.

The average historical stores and spares cost for the smelter and refinery as a whole over the two years and four month prior to the Valuation Date was US$36 per tonne of copper. Table 5-11 below compares the KCM LOM with IMC's projections and shows the effect in 2005-06 of the different budget and actual cost base used by KCM and IMC.

Table 5-11 Nkana Stores and Spares Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of Copper)		36	
Annualised Other Stores and Spares Cost (US$ per tonne of Copper)			
2005-06	52	49	-4
2006-07	51	46	-6
2007-08	46	46	-1
2008-09	35	43	+7
2009-10	36	38	+1
2010-11	36	35	-1

Manpower

In the four month period, April to July, 2005, manpower accounted for 19% of the operating costs at Nkana. The operations employed 1,794 people including contractors and trainees. IMC considers that, despite the Company manpower natural wastage profile of the Nkana operations, a buyer would expect to include a constant manpower complement in its valuation as the aging plant would remain labour intensive in maintaining the 2005 throughput for the next 30 years even with an upgrade.

Wage Rates

IMC expects the rate changes described in Manpower part of Section 3.5.3.3 above to be incorporated into a buyer's August 2005 valuation.

Table 5-12 below shows the effects of the IMC labour cost projections compared with the KCM LOM projections where IMC has projected a different throughput profile based on a delayed and slower build up period for KDMP with an extended life for the Nchanga operations combining to give Nkana its maximum concentrate throughput in 2011-12 where Nchanga is still operational as KDMP reaches full production.

Table 5-12 Nkana Labour Cost Comparison

	KCM LOM	IMC	Difference
Historical Average (US$ per tonne of copper)		67	
Annualised Labour Cost (US$ per tonne of copper)			
2005-06	118	101	-17
2006-07	128	102	-26
2007-08	126	108	-18

2008-09	101	101	
2009-10	104	84	-20
2010-11	103	75	-28

Power

Nkana processing operations are part of a separate power supply agreement which was established between ZCCM (Smelter Co) and CEC in March 2000 for a 20 year period as described in Section 5.4.1 above.

In the four month period, April to July, 2005 power accounted for 14% of the operating costs at Nkana. Smelting and tank house refinery power is mainly consumed in the primary melting of concentrates and the smelting process together with the tank house electro-wining, making power a throughput variable cost.

The power supply agreement stipulated payment in US$ and hence there are no exchange rate issues to address in a real terms cost projection

Table 5-13 below shows the annualised total power costs for the IMC and the KCM LOM projections where the differences can be attributed to the different bases used by KCM and IMC for their projections together with the introduction of the blister section in 2008-09 showing a 10% increase in power cost.

Table 5-13 Nkana Power Cost Comparison

	KCM LOM	IMC	Difference
Historical Average (US$ per tonne of copper)		58	
Annualised Labour Cost (US$ per tonne of copper)			
2005-06	85	88	+2
2006-07	80	82	+2
2007-08	75	81	+7
2008-09	62	82	+20
2009-10	63	78	+14
2010-11	63	75	+12

Pyrite

Pyrite is a source of heat and a slagging agent within the smelting process and is treated consumable commodity supplied by Nampundwe. IMC has included a smelter upgrade, through the introduction of direct blister technology, in its projections which may reduce or eliminate the need for pyrite depending on the detailed design, which is unknown to IMC. In the absence of information we have assumed the pyrite consumptions is maintained at August 2005 levels with the existing smelter configuration. Once the smelter is upgraded the balance of heat and power would be be largely changeable. And hence even if the levels of pyrite required are reduced, the cost of pyrite benefit would be offset by a broadly corresponding increase in coal, fuel or power.

Total Operating Costs

Table 5-14 below shows IMC's projections of total operating costs, incorporating the projected profiles from the individual cost groups above, and compares these with the KCM LOM projections. We consider that the Nkana operations have a higher fixed cost element than projected in the KCM LOM and that base fuel costs are higher (we base on actual costs rather budget). IMC's projected concentrate grades of 41% from Konkola and a 95% recovery factor both contribute to mitigating fuel and fixed cost effects.

Table 5-14 Nkana Total Operating Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of Copper)		503	
Annualised Total Operating Cost (US$ per tonne of copper)			
2005-06	571	573	+1
2006-07	545	527	-18
2007-08	514	535	+21
2008-09	422	513	+91
2009-10	431	452	+21
2010-11	429	422	-7

Table 5-15 below compares the first ten years of the KCM LOM plan with IMC's operating cost projections and covers the critical ramp up period for KDMP and the completion of the Nchanga operations; whilst Table 5-16 shows the steady state period up to year 18 together with the final year and totals. Both tables show the variances between the IMC and KCM LOM projections for the main cost groups used above.

Table 5-15 Nkana Operating Cost Projection Comparison, Years 1 to 10

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
	Proj (M$)	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**
KCM LOM Projections										
Smelter	49.4	47.0	49.2	53.4	53.0	53.1	53.0	53.0	52.9	51.1
Manpower	8.3	9.2	10.1	10.6	10.6	10.6	10.6	10.6	10.6	10.6
Fuel	4.9	3.6	4.0	5.3	5.1	5.1	5.1	5.1	5.1	4.5
Coal	6.9	5.2	5.7	7.5	7.3	7.3	7.3	7.3	7.2	6.3
Pyrite (Nampundwe)	8.6	8.8	9.1	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Power	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Other consumables	7.6	7.1	7.3	7.8	7.8	7.8	7.8	7.8	7.7	7.5
Repair & Maintenance	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Other cost	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Refinery	10.4	10.2	10.9	12.1	12.0	12.0	12.0	12.0	12.0	11.4

Manpower	3.0	3.3	3.7	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Power	3.5	3.0	3.3	4.3	4.2	4.2	4.2	4.2	4.2	3.7
Other consumables	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.7
Repair & Maintenance	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Other cost	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Acid Plant	8.4	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Manpower	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Power	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Other consumables	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Repair & Maintenance	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Other cost	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Administration	7.8	8.1	8.5	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Manpower	3.4	3.7	4.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Other	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Total operating cost	**76.0**	**73.8**	**77.1**	**82.7**	**82.2**	**82.3**	**82.2**	**82.2**	**82.1**	**79.7**
Total operating cost conc ($/t)	184.4	179.4	169.0	138.9	141.8	141.2	141.6	141.6	142.2	158.1
Total operating cost copper ($/t)	571	545	514	422	431	429	430	430	432	480
IMC Operational Plan Projections										
Smelter	50.2	46.6	46.7	49.3	53.4	57.0	53.7	53.9	53.8	54.3
Manpower	6.8	7.1	7.3	7.6	7.9	8.1	7.9	8.0	7.9	8.0
Fuel	9.0	6.3	6.0	5.7	7.0	7.9	7.0	7.1	7.1	7.2
Coal	7.3	6.7	6.4	6.1	7.6	8.7	7.7	7.7	7.7	7.9
Pyrite (Nampundwe)	8.0	8.3	9.0	10.9	9.9	9.9	9.9	9.9	9.9	9.9
Power	5.5	5.3	5.1	5.8	6.5	7.1	6.6	6.6	6.6	6.7
Other consumables	7.1	6.8	6.7	6.9	7.6	8.2	7.7	7.7	7.7	7.8
Repair & Maintenance	3.2	3.1	3.0	3.1	3.4	3.6	3.4	3.4	3.4	3.5
Other cost	3.2	3.1	3.1	3.1	3.5	3.7	3.5	3.5	3.5	3.5
Refinery	9.5	9.6	9.6	10.3	12.2	13.5	12.4	12.5	12.5	12.8
Manpower	2.6	2.7	2.8	3.0	3.1	3.2	3.1	3.1	3.1	3.2
Power	3.5	3.5	3.4	3.8	4.9	5.6	5.0	5.0	5.1	5.2
Other consumables	1.7	1.7	1.7	1.8	2.2	2.5	2.3	2.3	2.3	2.3
Repair & Maintenance	1.1	1.1	1.1	1.1	1.3	1.4	1.3	1.3	1.3	1.3
Other cost	0.6	0.6	0.5	0.6	0.7	0.8	0.7	0.7	0.7	0.8
Acid Plant	9.2	9.0	8.8	9.2	10.7	11.8	10.8	10.9	10.8	11.0
Manpower	0.9	0.9	0.9	1.0	1.0	1.1	1.0	1.0	1.0	1.0
Power	2.5	2.4	2.3	2.4	2.9	3.2	2.9	2.9	2.9	2.9
Other consumables	4.3	4.2	4.1	4.3	5.1	5.6	5.1	5.1	5.1	5.2
Repair & Maintenance	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5
Other cost	1.0	1.0	1.0	1.0	1.2	1.4	1.2	1.2	1.2	1.3
Administration	6.1	6.4	6.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6

Manpower	3.0	3.1	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Other	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Total operating cost	**75.0**	**71.6**	**71.5**	**75.3**	**83.0**	**89.0**	**83.5**	**83.9**	**83.8**	**84.7**
Total operating cost conc ($/t)	183.0	188.1	196.2	194.9	173.7	163.5	173.1	172.4	172.8	171.5
Total operating cost copper ($/t)	573	527	535	513	452	422	444	442	444	440
Variance										
Smelter	0.9	-0.3	-2.5	-4.1	0.5	4.0	0.7	0.9	0.9	3.2
Manpower	-1.5	-2.1	-2.7	-3.0	-2.6	-2.5	-2.6	-2.6	-2.6	-2.6
Fuel	4.2	2.6	2.0	0.5	1.8	2.7	1.9	2.0	2.0	2.7
Coal	0.4	1.6	0.7	-1.3	0.3	1.3	0.4	0.5	0.5	1.5
Pyrite (Nampundwe)	-0.5	-0.6	-0.1	1.7	0.7	0.7	0.7	0.7	0.7	0.7
Power	0.1	-0.1	-0.3	0.4	1.1	1.7	1.2	1.2	1.2	1.3
Other consumables	-0.5	-0.3	-0.6	-0.9	-0.1	0.4	-0.1	-0.1	-0.1	0.3
Repair & Maintenance	-0.1	-0.2	-0.2	-0.2	0.1	0.4	0.2	0.2	0.2	0.2
Other cost	-1.2	-1.3	-1.3	-1.3	-0.9	-0.7	-0.9	-0.9	-0.9	-0.9
Refinery	-0.9	-0.6	-1.3	-1.8	0.2	1.5	0.4	0.5	0.6	1.4
Manpower	-0.4	-0.6	-0.8	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Power	0.1	0.5	0.1	-0.5	0.7	1.4	0.8	0.8	0.9	1.5
Other consumables	0.0	0.0	0.0	0.0	0.5	0.7	0.5	0.5	0.5	0.6
Repair & Maintenance	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.3	0.3	0.3
Other cost	-0.6	-0.6	-0.7	-0.6	-0.5	-0.4	-0.5	-0.5	-0.5	-0.4
Acid Plant	0.8	0.5	0.2	0.7	2.2	3.4	2.3	2.4	2.4	2.5
Manpower	0.0	-0.1	-0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Power	0.0	-0.1	-0.2	-0.1	0.4	0.7	0.4	0.4	0.4	0.5
Other consumables	1.8	1.7	1.5	1.7	2.5	3.1	2.6	2.6	2.6	2.7
Repair & Maintenance	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Other cost	-0.7	-0.7	-0.7	-0.7	-0.5	-0.3	-0.5	-0.5	-0.5	-0.5
Administration	-1.7	-1.8	-2.0	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Manpower	-0.4	-0.6	-0.9	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9
Other	-1.3	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2
Total operating cost	**-1.0**	**-2.2**	**-5.6**	**-7.4**	**0.8**	**6.8**	**1.3**	**1.7**	**1.7**	**5.0**
Total operating cost conc ($/t)	-1.4	8.7	27.2	56.1	31.8	22.3	31.6	30.7	30.7	13.5
Total operating cost copper ($/t)	1.5	-18.5	21.5	90.9	20.5	-7.3	13.9	12.0	11.4	-40.3

Table 5-16 Nkana Operating Cost Projection Comparison, Years11 to 18 and 29

	2015-16 Proj (M$)	2016-17 Proj (M$)	2017-18 Proj (M$)	2018-19 Proj (M$)	2019-20 Proj (M$)	2020-21 Proj (M$)	2021-22 Proj (M$)	2022-23 Proj (M$)	2034-35 Proj (M$)	Total Proj (M$)
KCM LOM Projections										
Smelter	51.1	51.1	51.1	51.1	51.1	51.3	51.4	51.4	51.8	1,553.6
Manpower	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	313.0
Fuel	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.7	142.7
Coal	6.3	6.3	6.3	6.3	6.3	6.4	6.5	6.5	6.7	202.9
Pyrite (Nampundwe)	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	275.0
Power	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	161.7
Other consumables	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	227.9
Repair & Maintenance	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	98.4
Other cost	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	131.9
Refinery	11.4	11.4	11.4	11.4	11.4	11.5	11.5	11.5	11.6	348.5
Manpower	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	114.2
Power	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8	3.9	117.0
Other consumables	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	52.2
Repair & Maintenance	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	29.2
Other cost	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	36.0
Acid Plant	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	253.9
Manpower	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	29.1
Power	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	74.6
Other consumables	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	76.2
Repair & Maintenance	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	22.8
Other cost	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	51.2
Administration	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	259.8
Manpower	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	128.1
Other	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	131.7
Total operating cost	**79.7**	**79.7**	**79.7**	**79.7**	**79.7**	**79.9**	**80.1**	**80.1**	**80.6**	**2,415**
Total operating cost conc ($/t)	158.1	158.1	158.1	158.1	158.1	156.2	154.8	154.8	151.2	152.4
Total operating cost copper ($/t)	480	480	480	480	480	475	470	470	460	463
IMC Operational Plan Projections										
Smelter	54.3	50.9	50.9	50.9	50.9	51.2	51.5	51.5	52.2	1,570.5
Manpower	8.0	7.8	7.8	7.8	7.8	7.8	7.9	7.9	7.9	234.6
Fuel	7.2	6.3	6.3	6.3	6.3	6.4	6.5	6.5	6.7	205.0
Coal	7.9	6.8	6.8	6.8	6.8	6.9	7.0	7.0	7.2	220.8
Pyrite (Nampundwe)	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	293.6
Power	6.7	6.2	6.2	6.2	6.2	6.2	6.3	6.3	6.4	190.0
Other consumables	7.8	7.2	7.2	7.2	7.2	7.3	7.3	7.3	7.5	224.3

Repair & Maintenance	3.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	100.5
Other cost	3.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4	101.7
Refinery	12.9	11.8	11.8	11.8	11.8	11.9	12.0	12.0	12.3	362.4
Manpower	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	92.7
Power	5.3	4.6	4.6	4.6	4.6	4.7	4.8	4.8	4.9	144.5
Other consumables	2.4	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	65.9
Repair & Maintenance	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	37.7
Other cost	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	21.5
Acid Plant	11.0	9.9	9.9	9.9	9.9	10.0	10.1	10.1	10.3	311.0
Manpower	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	30.6
Power	2.9	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	82.8
Other consumables	5.2	4.6	4.6	4.6	4.6	4.7	4.7	4.7	4.9	146.4
Repair & Maintenance	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	15.7
Other cost	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	35.4
Administration	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	198.2
Manpower	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	101.9
Other	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	96.3
Total operating cost	**84.8**	**79.2**	**79.2**	**79.2**	**79.2**	**79.8**	**80.2**	**80.2**	**81.4**	**2,442.0**
Total operating cost conc ($/t)	171.7	184.0	184.0	184.0	184.0	182.7	181.5	181.5	178.8	179.1
Total operating cost copper ($/t)	441	472	472	472	472	469	466	466	459	464
Variance										
Smelter	3.2	-0.2	-0.2	-0.2	-0.2	-0.1	0.1	0.1	0.4	16.9
Manpower	-2.6	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-78.4
Fuel	2.7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	62.3
Coal	1.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	17.9
Pyrite (Nampundwe)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	18.7
Power	1.3	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	28.3
Other consumables	0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-3.6
Repair & Maintenance	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1
Other cost	-0.9	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-30.3
Refinery	1.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	13.8
Manpower	-0.7	-0.8	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-21.4
Power	1.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	27.5
Other consumables	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	13.6
Repair & Maintenance	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	8.6
Other cost	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-14.5
Acid Plant	2.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.9	57.1
Manpower	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.5
Power	0.5	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	8.2
Other consumables	2.7	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	70.2

Repair & Maintenance	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-7.1
Other cost	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5	-15.8
Administration	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-61.6
Manpower	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-26.2
Other	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-35.4
Total operating cost	**5.1**	**-0.5**	**-0.5**	**-0.5**	**-0.5**	**-0.2**	**0.1**	**0.1**	**0.8**	**26.2**
Total operating cost conc ($/t)	13.6	26.0	26.0	26.0	26.0	26.4	26.8	26.8	27.7	26.6
Total operating cost copper ($/t)	-39.8	-7.9	-7.9	-7.9	-7.9	-5.9	-4.3	-4.3	-0.4	0.5

Figure 5-4 below graphs the actual and IMC projected operating cost per tonne of copper or acid during the initial stages of KDMP until steady state is achieved with costs broken down into the four cost centres.

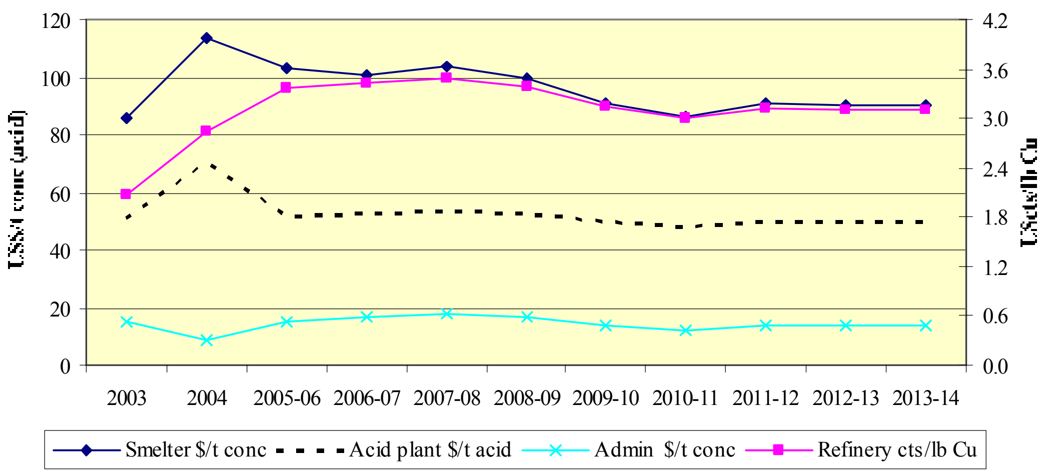


Figure 5-4 Nkana Operating Cost

5.7.3 Capital Expenditure

Other cash expenses that were directly allocated to Nkana comprise capital expenditures and environmental remediation costs.

5.7.3.1 Sustaining Capital

In August 2005 the continued operation of the Nkana smelter depended on the timely replacement of worn-out equipment. Among the major items included in the 2005-06 Budget were two converter air blowers, two converter aisle cranes and a converter hood. Table 5-17 below shows the cost of the major capital items included in the 2005-06 Budget.

Table 5-17 Nkana 2005-06 Capital Expenditure Budget

Section	Cap Ex (M$)
Air Blowers	2.5
Cranes	1.4
PS3 Converter Hood	1.2
Anode Furnace Upgrade	3.1
Others	3.5
Total	**11.7**

US$100 k was included in the Budget for a "New Smelter Study", indicating that prior to the Valuation Date KCM were considering the merits of basing their smelting capacity on a new-build smelter as opposed to the existing old technology plant.

IMC considers that the replacement capital programme would continue each year after 2005 with some significant costs being incurred, including a new heat exchanger for the oxygen plant at a cost of US$10 M, a dense phase concentrate injection system for the El Teniente converter at US$2.6 M, anode furnace upgrade and gas capture hoods for the converters at US$4.3 M and the use of coal in the converters and anode furnaces in place of HFO.

In August 2005 the refinery tankhouse was also a very old plant and machinery and equipment required periodic replacement. Production was entirely dependant on the efficient operation of the overhead cranes, for which new motors, hoists and long travel gears were necessary. There also remained over 800 lead lined cells which needed replacing with polymer concrete cells over the three to five years.

IMC estimates that the continued operation of the Nkana smelter and refinery tankhouse would have been envisaged at the Valuation Date to require replacement expenditure in the order of US$15 M per year for as long as the plants continued in service without an upgrade. Table 5-18 below shows the annual sustaining capital phased projections from the KCM LOM and the IMC Operational Plan projections, which includes a reduction to US$10 Mpa after the commissioning of the smelter upgrade from 2008-09.

Table 5-18 Nkana Sustaining Capital Phasing Comparison

	0	1	2	3	4	5	6	7
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
	Proj	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**	**Proj**
KCM LOM Projections								
Capital (US$ M)	10.67	15.0	15.0	10.0	10.0	10.0	10.0	10.0
IMC Operational Plan Projections								
Capital (US$ M)	10.67	15.0	15.0	10.0	10.0	10.0	10.0	10.0
Variance								
Capital (US$ M)								

5.7.3.2 Project Capital

Smelter Upgrade

KCM estimated in July 2005 that the replacement of the Nkana smelter with a new Outokumpu Flash to Blister furnace would cost US$125 M. IMC considers this estimate to be unacceptable for a complete smelter replacement but realistic provided that the existing oxygen and acid plants continue to operate in conjunction with the new blister furnace as an uprated smelter.

KCM subsequently (January 2006) decided to site their new smelter at Nchanga as this would reduce the cost of concentrate and acid transport, albeit at the expense of increased anode and anode scrap transport costs. This, of course, required that they build a new oxygen plant and new anode furnaces and casting wheels and the estimated cost was US$212 M. Missing from this estimate was the inevitable cost of an acid plant, at US$ 40 – 50 M, depending on specification.

Both the KCM LOM plan and IMC's operating plan have spread the US$125 M over two years from 2006 to 2008.

SO_2 Acid Plant

In May 2005 a further US$25.4 M was approved to improve the then SO_2 capture at Nkana from 50% or 750 tpd to 90% or 1,300 tpd,, which became a refurbishment of No 4 existing acid plant supplying 500 tpd and financed from sustaining capital.

5.7.4 Environmental Costs

5.7.4.1 Current Non- Compliance

Section 5.5 identified certain environmental non-compliance issues at Nkana, mainly associated with water management and discharge and particularly gas and dust emissions into the atmosphere, which would have been current in August 2005. The cost of rectifying the water problems is not significant but the emissions to atmosphere require wholesale modifications to the reactor vessels and the SO_2 capture systems. However, IMC has included some these particular projects in Table 5-17 above and included them in its sustaining capital projections.

5.7.4.2 Closure and Remediation

Table 5-19 below shows the environmental remediation costs post closure of the Nkana operation were not identified separately in the KCM LOM, but could have been included in the sustaining capital. IMC has estimated these costs to be approximately US$35.5 M, with a small on-going annual commitment thereafter, and has included this within its valuation, and would have expected a responsible buyer to adopt and make similar provisions within its valuation.

Table 5-19 Nkana Rehabilitation, Decommissioning and Closure Costs

Area	Total (US$ M)
Smelter Facilities	2.2
Refinery Facilities	1.7
Acid Plants No. 3, 4	1.1
Engineering Workshops, General Offices	2.3
General Cleanup Works	0.8
Cleanup of Contaminated Soils	27.4
Total	**35.5**
Ongoing Monitoring	1.7
Grand Total	**37.2**

5.8 Upside Potential

5.8.1 New Build Smelter

Section 2.6.3 has considered the concentrates and smelting capacity balance as of August 2005 and Sections 2.6.3 and 5.6.1 addressed the smelting issues in relation to the existing and potentially uprated Nkana smelter, but a complete new-build smelter could be considered as part of a buyer's valuation possibly sited at Nchanga because of some or all of the following.

- An integrated smelter would be operationally and financially beneficial with copper recoveries around 97%
- The associated SO_2 plant would produce sulphuric acid which can be used in the TLP in preference to burning sulphur
- TLP has a long life potential beyond the remaining mines
- After the rundown of mining operations labour would be available
- An operating smelter would extend the life of the Nchanga complex allowing greater restoration time

IMC has compared the operating and capital costs of an "uprated" and a new build smelter of a similar size in order to assess whether a buyer might have identified (and hence potentially been willing to pay for) increased value arising from a new build strategy. Table 5-20 below shows the annual operating and total capital costs for both cases.

Table 5-20 Uprated and New Build Smelter Cost Comparison

	Uprated Smelter		New Build Smelter	
	US$ M	US$/t conc	US$ M	US$/t conc
Operating Costs				
Fixed	26		19	
Variable		75		58
Capital Expenditure				
Project Capital	125		250	
Pre-Commissioning Sustaining Capital per year	15		15	
Post Commissioning Sustaining Capital per year	10		5	

Operating Cost

Operating costs for an uprated smelter have been taken directly from the IMC operating plan projections in Section 5.7.2.2 above. Whilst the operating costs for a new build smelter were assessed with the following approach:

Fixed costs represent 45% of the total cost within the IMC projections and would be expected to remain at a similar level in a new build smelter.

<u>Fixed costs</u>

A new build smelter would be expected to operate with significantly less manpower reducing the existing or uprated complement of approximately 850 down to approximately 250 with a saving of US$5.6 M. Other fixed costs would be expected to be in line with the overall trend.

<u>Variable costs</u>

Variable costs for a new build smelter would be assumed to be lower than for the existing or uprated plant primarily due to a smaller number of major equipment items and a completely integrated state of the art design.

Based on IMC's knowledge of copper smelters operating in 2005, the completely integrated technology and proprietary data base cost models its projection for a new build would be US$58 per tonne of concentrate, which represents a 23% cost reduction compared with an uprated smelter.

Capital Expenditure

The capital cost to uprate the existing smelter at Nkana of US$125 M together with a sustaining capital of US$15 M before and US$10 M after the upgrade have been projected in the KCM LOM and IMC's operating plan shown in Section 5.7.3.

In August 2005 the Isasmelt plant planned by the Chinese was expected to cost US$200 M and the Outokumpu direct blister vessel for Nkana was expected to cost US$125 M. IMC would have expected a brown field site new-build 250,000t of copper smelter to cost US$250 M with a design, construction and commissioning period of 2.5 years.

Net Present Value (NPV)

Using the IMC projections based on Table 5-20 figures which reflect the different recovery rates within the operating costs, and a 15% discount rate, the new build smelter would cost US$1.0 M more to build and operate than the uprated existing plant, while at a 10% discount rate the new build smelter would cost US$50 M less than the uprate option. The new build option would therefore have seemed markedly less attractive to a buyer using a 15% discount rate but more attractive for one using 10%. Depending on the discount rate used there could be a material value enhancement to be gained from switching to the new build configuration. IMC has considered the uprated smelter in its operational plan but considers a new build smelter could included in an upside sensitivity as it has the potential to incorporate toll smelting with the excess capacity available.

5.8.2 Toll Smelting

In August 2005, it was recognised that there was concentrate available from external sources for toll smelting, as shown in Table 2-2 and, provided excess capacity was available, IMC agrees that there would be some upside potential from toll smelting, which was a competitive business where agreements follow a standard pattern world wide. The smelter returns to the mine owner, or pays the LME price for, 95% of the contained copper in concentrate, subject to a minimum deduction of one unit percent, which reflects the copper recovery in the smelter. A treatment charge (typically US$100) was levied for each dry tonne of concentrate and a refining charge (typically US$0.10) was levied for each pound of payable copper. There are bonuses for precious metals and penalties for deleterious elements in the concentrate.

In practice, toll smelters make their profits by achieving copper recoveries significantly higher than 95%, and precious metal recoveries higher than their respective payable percentages. In this market, the uprated Nkana smelter's 95% copper recovery would be marginal but a complete new build smelter should have a higher recovery. So long as the supply of concentrate exceeded the available smelter capacity a new build smelter could have the potential to make profits from toll smelting.

5.8.3 Hydrometallurgical Treatment

Alternative hydrometallurgical techniques had become available since the last new technology for processing concentrates was introduced to the copperbelt in the 1970's.

Previously the only hydrometallurgical treatment route for copper sulphide concentrates was the roast, leach, electro-winning (RLE) process that had been used since the 1960's at Chambishi. The main drawbacks with this process had been the low recovery (only ~94% of copper was solubilised in the roast and solid liquid separation techniques were poor so overall recovery was not better than 88%) and the poor quality of the copper cathode that had been sent to a smelter. Both of these problems were then being overcome, albeit at the cost of considerable complexity and operating expense. From a KCM point of view, the advantage of the RLE process lay in the high percentage conversion of sulphur to sulphuric acid for use in the TLP.

The introduction of high pressure oxidative leaching of copper sulphide concentrates was comparatively recent but should have achieved recoveries comparable with smelting and, by using solvent extraction to produce a pure electrolyte, produce cathode of LME A Grade. The competitiveness of this process was illustrated by its installation at Kansanshi for which the approval was given at about the Valuation Date. The main drawback with this process from a KCM perspective was that the sulphur in the concentrate was mainly converted to elemental sulphur in the leach residue. It was conceivable that the sulphur could be recovered by flotation from the residue and fed to a sulphur burning acid plant, but this would need to be proven.

Hydrometallurgical treatment had clearly been developing but was not proven in August 2005, and IMC would have expected a buyer to adopt conventional and proven technologies and processing methods, such as smelting, in preparing its valuation. We would not have seen any merit in pursuing hydrometallurgical treatment of acid insoluable ores within KCM as of August 2005.

6 NAMPUNDWE

6.1 Geological Characteristics

The Nampundwe pyrite deposit is situated on the western flank of a synformal basin composed of basement rocks, which are unconformably overlain by Katangan sediments. The deposit is hosted within limestones and schists of the Middle Katangan Cheta Formation, which roughly correlates with the upper portion of the Lower Roan Group. The Cheta Formation dips steeply to the northeast and is tightly folded with a northwest-southeast trending axial trace. The deposit comprises stratabound, massive-sulphide mineralisation located in a thick (50m to 130m) sequence of massive dolomites and limestones. No significant faulting has been identified either within the host zone or the individual orebodies.

The primary sulphide mineralisation at Nampundwe is pyrite with minor amounts of pyrrhotite, chalcopyrite and covellite.

Four orebodies occur over a strike length of about 1,600 m and dip from 70° to vertical along fold limbs and from 25° to 70° near the noses of folds. They thin at the fringes of the orebody and down-dip. The sulphide orebodies are overlain by oxide caps (gossans) that extend from surface to a depth of 60m. These deposits are generally parallel and range in thickness from 5-20 m. The oxide caps act as natural conduits for water thus making Nampundwe Mine relatively wet. The orebodies have been identified to a depth of 300 m below surface and remain open at depth.

The primary sulphide mineralisation at Nampundwe is pyrite with minor amounts of pyrrhotite, chalcopyrite and covellite. Gangue mineralisation is of calcite, dolomite, quartz, magnetite, talc, mica and iron oxides. Pyrite mineralisation occurs as disseminated grains, bedding parallel layers, and as thick continuous zones up to 2 m thick. Copper mineralization was strongly developed in the upper parts of the orebody but these areas have now been mined out.

Grade distribution indicates a gradual decline in grade toward the hanging wall and footwall margins of the orebodies. In August 2005 the orebodies were based on an assay cut-off of 10%S and minimum thickness of 4 m. This resulted in orebody grades of between 10%S and 20%S with the pyrite grade, generally, higher in the north of the deposit.

The four major orebodies identified to at the Valuation date were:

- Orebody 1: Thickness of 10 m to 15 m and grade of 10%S to 15%S;
- Orebody 2: Thickness of 15 m to 20 m and grade of 15%S to 20%S;
- Orebody 3: Thickness of 5 m to 15 m and grade of 12%S to 16%S; and
- Orebody 4: Thickness of 10 m to 15 m and grade of 10%S to 14%S.

These have been established to the 730 ft level (the lowest development level at Nampundwe) with inferred. Resources below this level.

6.2 Reserve and Resource

6.2.1 Estimation Methods

In August 2005 the geological database at Nampundwe Mine included underground and surface diamond drill-hole data, supplemented by chip sampling from development drives.

Sectional resource estimates were initially based on defining assay cut offs for hanging wall and footwall contacts (10%S), and a minimum mining width of 4 m. The cross-sectional area was usually measured using a planimeter, particularly where folding was evident or where it was steeply dipping and tabular. Once the volume had been estimated using an appropriate strike length, block tonnages were estimated using a density of 3.19 t/m^3.

The blocks were entered into a Resource/Reserve tabulation that showed in-situ resource, mineral reserve, depletion and remaining reserve, with the applicable resource and reserve classifications. This tabulation was updated five to six times a year and was used for overall compilation and reporting purposes. IMC understands the in August 2005 KCM planed to compile the geological information electronically, to facilitate geological modelling and evaluation.

The resources at Nampundwe are classified according to the SAMREC Code, based on the amount of geological sampling. Measured Mineral resources consist of areas for which sampling density is at a spacing of 50 m to 100m on strike and 60 m down dip. Local underground development and sampling may increase this sample density to 20 m by 25 m in the plane of the orebody. Indicated Mineral resources are generally based only on drill hole information spaced between 100 m and 300 m apart. Blocks with spacing greater than this are classified as Inferred Mineral Resources.

Following estimation of Mineral Resources, conversion to Mineral Reserves is generally by manual factoring of appropriate resource blocks, which were accessible from current infrastructure or would be accessible from planned infrastructure as included in the LOM Plan. Modifying factors applied included a tonnage extraction factor (inclusive of dilution) of 71% and 61% for Measured and Indicated blocks respectively and a grade factor of 85% for all Mineral Resources.

6.2.2 Reserves and Resources Statement

Table 6-1 and Table 6-2 below show the KCM reserves and resources statements for Nampundwe as of August 2005 which have been reviewed and verified by IMC. It should be noted that these resources do not include, and are additional to the reserves.

Table 6-1 Nampundwe Reserves

Pyrite Reserves	Reserve Category	Proved (Mt)	Probable (Mt)	Proved and Probable (Mt)	Total S (%)
Nampundwe LOM = 11 years	Proved	0.66			13.40
	Probable		1.10		12.80
	Total			**1.75**	**13.02**

Table 6-2 Nampundwe Resources

Pyrite Resources	Reserve Category	Measured (Mt)	Indicated (Mt)	Measured and Indicated (Mt)	Inferred (Mt)	Total S (%)
Nampundwe	Measured	0.83				16.97
	Indicated		4.16			16.40
	Total			**4.99**		16.49
	Inferred				1.60	17.69

6.3 Facilities

At the Valuation Date the facilities at Nampundwe consisted of an underground mine, concentrator and tailings facility commissioned in 1970.

6.3.1 Mining Facilities

Nampundwe was a small underground operation producing a pyrite ore for treatment in an adjacent process plant. The mine was well established and is in a steady state of production. It was reasonable to assume that the mine could continue to operate at planned production for the remaining life of mine.

6.3.2 Process Plant

The concentrator was capable of treating 0.42 Mtpa following refurbishment in the early 2000s. Minus 300 mm ore from underground was fed via an apron feeder and grizzly to a single toggle jaw crusher to produce a minus 100 mm product. There was a facility to take ore direct to a 150 t bin prior to crushing as well as a crushed ore stockpile.

Minus 100 mm primary crusher product was conveyed for screening, with underflow going to the mill, while oversize was re-crushed and joined the primary crusher product.

Minus 12 mm secondary crusher product fed to the two ball mills which operate in closed circuit with cyclones and on to the flotation circuit consisting of four banks of cells. Two banks of twelve cells each were used for roughing and scavenging where the products were combined and fed to two banks of four cells each which were used for cleaning. Scavenger tailings, at circa 1% sulphur reported to a thickener where the underflow was pumped to the tailings facility. Cleaner product at circa 40% sulphur was pumped to an additional thickener and then to a Larox filter. Cleaner tailings were pumped back to the rougher feed.

Concentrate was transported by road to the Nkana smelter.

6.3.2.1 Plant condition

IMC understand that in August 2005 the plant was capable of continuing to process ore at a rate of 0.43 Mtpa. However, an increase to 0.48 Mtpa would be possible if the pumps were replaced with larger units.

6.3.3 Tailings Disposal

In August 2005 thickened tailings form the process plant were pumped to the Tailings Paddock Dams Complex for settling, in particular, Paddock 18 which was constructed in 2000.

6.3.4 Management

In August 2005 the Nampundwe facilities were managed by a small well established team with a similar Company history and approach to the other business units within KCM. Being remote from the main operations in the Chingola area, and producing limited quantity of service product gave the team almost complete autonomy from the rest of the group. However, IMC considered the team to be effective and knowledgeable about the role of Nampundwe within the Company operations.

6.3.5 Infrastructure

6.3.5.1 Transport

In August 2005, the mine had easy access to Lusaka by road, with no rail connection all goods and products were transported by road.

6.3.5.2 Power Supply

At the Valuation Date the electricity supply to Nampundwe was taken from the 88 kV ZESCO system at the main substation and transformed to 3.3 kV for distribution around the mine. The mine had two 250 kVA standby diesel generators for use in emergency.

In addition to the agreement to supply electrical power to KCM as a whole, a second agreement was established directly between KCM and CEC again in 2000 for a period of 20 years. The terms of this second agreement were similar to the main KCM agreement but with an initial obligation for CEC to meet a maximum demand of 7.5 MW. The second agreement also made provision for a certain capacity to be protected, for the safety of the operations, during any periods of load shedding.

6.3.5.3 Workshops

The mine workshops had facilities for the basic repair and maintenance of the equipment. Major repairs were sent to specialist contractors. In addition, there were two underground workshops for the maintenance of the underground equipment.

6.3.6 Environment

At the Valuation Date the status of the environmental management of the Nampundwe facilities did not indicate any significant areas of non-compliance with the statutory requirements. IMC considered all the minor issues identified to be within managerial control with little financial implication. Closure and rehabilitation at the cessation of operations is considered below in the IMC projections.

6.4 Projects

No major projects involving significant capital expenditure were envisaged by KCM in August 2005, other than ongoing development to fulfil production plans.

6.5 IMC Forecasts

Pyrite is an additive to the smelting process which provides heat and assists the slagging process and is essential for smelting the low energy concentrates from Konkola and Nchanga if they have not been blended with high energy concentrates. The cessation of high energy concentrate availability in 2005 increased the pyrite requirements for the Nkana smelter in its August 2005 configuration and forms the basis of the mine plan below. However, IMC has incorporated the uprating of the smelter, with a direct blister section, into its operational plan which would negate or reduce the need for pyrite depending on the detailed requirements of the process design. Section 5.6.1 describes the smelter upgrade project but IMC is unaware of the specific pyrite consumption associated with the KCM low energy concentrates, and have therefore assumed the worst case by maintaining August 2005 levels in its operational plan.

6.5.1 Mine Plan

In August 2005 the KCM LOM plan envisaged a pyrite concentrate production of 108 ktpa without stipulating the mine ore quantities and grades or process plant recoveries. IMC considers that these tonnages would be produced providing ore grade, concentrate grade and recovery remain similar to the production history prior to the Valuation Date as shown in Table 6-3 below.

Table 6-3 Nampundwe Production History

	Item	2003		2004		2005 Jan - Mar		2005 Apr - July	
		Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
Concentrate	t	55,050	92,928	99,000	90,422	27,000	9,792	79,800	37,108
Grade	% S	40.0	40.9	40.0	40.6	40.0	40.5	43.0	40.27
Recovery	%	90.0	93.3	90.0	92.9	90.0	94.1	93.0	63.2

In this period concentrate production, grade and recovery had been consistently above budget, which was determined by the Nkana smelter requirements, with the exception of production which had been below budget in 2005 because of ore availability.

IMC has back calculated the pyrite requirement for Nkana smelter based on the existing smelter configuration and its own projections from Section 5.7.1, which are shown in Table 6-4 below.

Table 6-4 IMC Estimated Future Pyrite Requirements

	Aug 05-Mar 06	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2034-2035	Total
Ore (kt)	271	311	342	434	383	383	383	383	11,315
Sulphur Head Grade (%)	13.62	13	13	13	13	13	13	13	13
Recovery (%)	93	90	90	90	90	90	90	90	90
Sulphur Con Grade (%)	43	40	40	40	40	40	40	40	40
Concentrate Required (kt)	80	91	100	127	112	112	112	112	3,309

It should be noted that the pyrite requirement will depend on the smelting method and that the schedule above is based on the Nkana smelter. In addition, the schedule may be deferred to comply with the IMC view of the build up of the KDMP FS plan.

6.5.1.1 Mine Life

As of August 2005, there were 1.75 Mt of ore reserves. In addition, the total measured, indicated and inferred in situ ore resources of Nampundwe was approximately 6.59 Mt giving a practical total of 6.79 Mt of reserves and mineable resources (allowing for losses and dilution), which include approximately 1.6 Mt of inferred resources., giving a mine life of 17.7 years assuming pyrite consumption remains unchanged with the existing smelter configuration. However, IMC has included an uprating of the existing Nkana smelter, through direct blister technology, within its projections, which may reduce or negate the need for pyrite, depending on the detailed smelter design. This would extend the life of the mine allowing it potentially to provide pyrite across the projected life of Nkana or conceivably allow limited amounts of pyrite to be made available for external sale. Given its projected operating costs are not dissimilar to IMC's views of likely prices this would, however, only be marginally be profitable and have little effect on value.

6.5.2 Operating Cost

The operating costs a Nampundwe are only a fraction of the other business units which total less than US$10 M each year. IMC has therefore considered Nampundwe as a consolidated cost centre using the history of each category as the starting point.

Table 6-5 below shows a breakdown of the operating cost history and Figure 6-1 shows pictorially the production and operating cost history for the two years and four months prior to the Valuation Date for the pyrite operation. It should be noted that the variance to budget figures have a cost and production component and should be viewed against a 23% shortfall in smelter production and a 59% shortfall in pyrite ore production for the 4 month period. IMC has used these historical operating costs in conjunction with KCM LOM plan and its back calculation of the pyrite concentrate requirements. We would have expected a buyer to use the same starting point for its valuation purposes.

Table 6-5 Nampundwe Operating Cost History

	2003	2004	Apr-Jul 05	Apr-Jul 05
	Actual (M$)	**Actual (M$)**	**Actual (M$)**	**Budget (M$)**
Pyrite Ore Mined (t)	**280,187**	**287,215**	**37,108**	**90,462**
Pyrite Concentrates Produced(t)	**92,967**	**90,423**	**6,933**	**24,000**
Manpower	**1,187,378**	**793,891**	**607,732**	**606,993**
Operations				

- Fuel	46,819	23,244	15,113	16,438
- Explosives	319,388	196,831	65,257	136,216
- Drilling Material	143,782	139,594	65,157	65,937
- Mill Balls & Rods	52,669	35,564	4,650	14,725
- Consumables	91,669	93,117	18,698	53,903
- Stores & Spares	320,278	327,564	23,632	138,294
- Power	636,034	363,501	132,665	174,709
- Labour Hire	357,547	318,742	33,516	74,700
Sub-total	**1,968,186**	**1,498,157**	**358,688**	**674,922**
Repair & Maintenance				
- Stores & Spares	192,715	375,280	19,081	93,576
- Mechanical	-146,419	334,788	72,267	48,476
- Electrical, buildings	67,844	73,549	30,719	49,351
- Heavy Vehicles	59,303	18,339	0	0
Sub-total	**173,443**	**801,956**	**122,067**	**191,403**
Freight Charges Concentrate	2,666,441	1,663,046	108,019	561,600
Operating Projects	0	310,575	0	265,500
Others	273,113	382,878	45,236	94,754
Administration	**678,365**	**106,326**	**114,596**	**317,349**
Total Cost	**6,946,926**	**5,556,829**	**1,356,338**	**2,712,521**

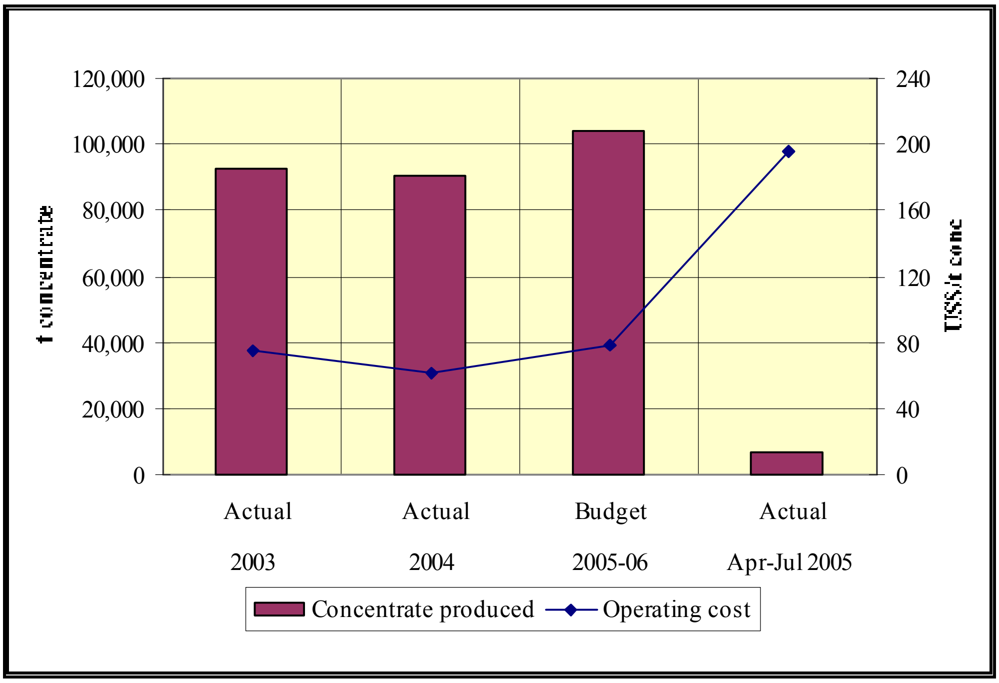


Figure 6-1 Concentrate Production and Operating Cost History

6.5.2.1 Operating Cost Projections

Table 6-6 below shows the first ten years of the KCM LOM and IMC's operating cost projections and covers the critical ramp up period for KDMP and the completion of the Nchanga operations showing variances between the IMC and KCM LOM projections.

Table 6-6 Nampundwe Operational Cost Projection Comparison, Years 1 to 10

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)	Proj (M$)
KCM LOM Projections										
Manpower	2.2	2.4	2.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Operations										
- Fuel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
- Explosives	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
- Drilling Material	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- Consumables	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
- Stores & Spares	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
- Power	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
- Labour Hire	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Sub-total	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Repair & Maint										
- Stores & Spares	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- Mechanical	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
- Electrical	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
- Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Freight Charges on Concentrate	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Operating Projects	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Others	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing Cost - Pyrite Concentrate	7.9	8.2	8.5	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Medical Expenses	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Travel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Protective Clothing	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Repair & Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Insurance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Others	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Administration	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total Cost	**8.6**	**8.8**	**9.1**	**9.2**	**9.2**	**9.2**	**9.2**	**9.2**	**9.2**	**9.2**
IMC Operational Plan Projections										
Manpower	2.3	2.4	2.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Operations										
- Fuel	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- Explosives	0.5	0.5	0.6	0.8	0.7	0.7	0.7	0.7	0.7	0.7
- Drilling Material	0.5	0.5	0.6	0.8	0.7	0.7	0.7	0.7	0.7	0.7
- Consumables	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- Stores & Spares	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2

- Power	0.9	0.9	1.0	1.2	1.1	1.1	1.1	1.1	1.1	1.1
- Labour Hire	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Sub-total	2.7	2.8	3.0	3.8	3.4	3.4	3.4	3.4	3.4	3.4
Repair & Maint										
- Stores & Spares	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- Mechanical	0.5	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6
- Electrical	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
- Heavy Vehicles										
Sub-total	0.9	0.9	1.0	1.2	1.1	1.1	1.1	1.1	1.1	1.1
Freight Charges on Concentrate	1.4	1.4	1.6	2.0	1.7	1.7	1.7	1.7	1.7	1.7
Operating Projects										
Others	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Manufacturing Cost - Pyrite Concentrate	7.6	7.8	8.5	10.4	9.5	9.5	9.5	9.5	9.5	9.5
Medical Expenses	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Travel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Protective Clothing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repair & Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Insurance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Administration	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Total Cost	**8.0**	**8.3**	**9.0**	**10.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**
Variance										
Manpower	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Operations										
- Fuel	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
- Explosives	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1
- Drilling Material	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4
- Consumables	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
- Stores & Spares	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
- Power	0.3	0.3	0.3	0.6	0.4	0.4	0.4	0.4	0.4	0.4
- Labour Hire	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sub-total	0.4	0.4	0.6	1.4	1.0	1.0	1.0	1.0	1.0	1.0
Repair & Maint										
- Stores & Spares	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
- Mechanical	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5
- Electrical	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-total	0.4	0.4	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6
Freight Charges on Concentrate	-1.1	-1.0	-0.9	-0.5	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Operating Projects	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Others	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing Cost - Pyrite Concentrate	-0.3	-0.4	0.1	1.8	0.9	0.9	0.9	0.9	0.9	0.9
Medical Expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Travel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Protective Clothing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repair & Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Insurance	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Others	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Administration	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Total Cost	**-0.5**	**-0.6**	**-0.1**	**1.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**

The differences between the KCM LOM plan and IMC's operating plan mainly emanate from the slightly increased concentrate requirements estimated by IMC and amount to an average overall 3.5% addition to the operating cost per tonne of pyrite concentrate.

6.5.3 Capital Expenditure

Other cash expenses that were directly allocated to Nampundwe comprise capital expenditures and environmental remediation costs.

6.5.3.1 Sustaining Capital

In August 2005 there was no sustaining capital identified by KCM for the Nampundwe operations. IMC has followed a similar approach in its projections assuming that any minor capital would come out of the Nkana annual budget if required.

6.5.3.2 Project Capital

No major projects involving significant capital expenditure were envisaged by KCM in August 2005, other than ongoing development to fulfil production plans.

6.5.4 Environmental Costs

6.5.4.1 Current Non- Compliance

Section 6.3.6 did not identify any specific environmental non-compliance issues at Nampundwe which would have been current in August 2005, and IMC considers that any future issues would be covered by the sustaining capital allocated to Nkana above.

6.5.4.2 Closure and Remediation

Table 6-7 below shows the environmental remediation costs post closure of the Nampundwe operation were not identified separately in the KCM LOM. IMC has estimated these costs to be approximately US$2.0 M, with a small on-going annual commitment thereafter, within its valuation, which we have expected a responsible buyer to adopt and make similar provisions within its valuation.

Table 6-7 Nampundwe Rehabilitation, Decommissioning and Closure Costs

Area	Total (US$ M)
Underground Workings	0.24
Surface Facilities	1.6
Tailings Dams	0.16
Total	**2.0**

Ongoing Monitoring	0.5
Grand Total	**2.5**

7 CORPORATE FACILITIES

7.1 Facilities

At the Valuation Date the KCM corporate facilities consisted of an office complex and central support infrastructure facilities.

7.1.1 Corporate Offices

In August 2005 were located adjacent to the Nchanga business unit complex at Chingola, operating with 1,329 staff whose functions included:

- Company directorate an senior management
- Corporate administration
- Sales and marketing
- Infrastructure support
- Accommodation and social asset management

The management team were a mixture of ex-pat and indigenous former ZCCM personnel headed by the Vedanta representative Country and Finance directors. As with all the individual business units, the staff were well informed, competent and confident in their positions and fielded all the IMC questions promptly.

7.1.2 Centralised Infrastructure

7.1.2.1 Maintenance

KCM operated a comprehensive planned preventative maintenance system in August 2005. The system was computer based being derived from an earlier paper based manual system. The system provided details of all the equipment installed in the complex, including the frequency and types of maintenance, and an historical record of the maintenance carried out. Reports were generated detailing maintenance work required and any work not carried out within the specified timescale.

The system was managed by a separate department who issue the maintenance instructions to the requisite sections and recorded the results of the work carried out. The maintenance computer system was also linked to the stores and finance computers so that re-ordering and spare parts cost analysis would be automatically updated in each system.

7.1.3 Communications

At the Valuation Date KCM communications were administered from a centre located in the Head Offices, which linked both data and voice transmissions to the national Zambian communications system and provided national and international telephone facilities, internet connections and data transmission.

Each business unit had its own communications networks for local voice and data transmissions, and was linked, via micro-wave links, to the communications centre for national telephone connections and internet connection.

The equipment employed was generally in good condition and working well and KCM had a programme of upgrading and refurbishment, particularly the data transmission networks to meet the increasing capacity demands.

7.1.4 Accommodation and Social Assets

In August 2005 KCM still owned a few houses mainly for ex-pat management staff which were kept in good condition and well maintained.

KCM also owned various clubs in the townships adjacent to their operations, cricket club, golf club, etc. where KCM owned the land and buildings but did not contribute to the maintenance of the facilities except under special circumstances. The use of the clubs was popular but as membership of the clubs was low, they had become a little run down and in need of refurbishment but continued to be managed and maintained from members' subscriptions, donations and income from visiting groups.

At the Valuation Date KCM operated and maintained one hospital and three clinics in the Nchanga area, and one hospital and six clinics at Konkola where it took full responsibility for their operation and staffing.

The facilities were well maintained and reasonably equipped, although some equipment required replacement or upgrading, however, the KDMP FS included for some refurbishment work and improved facilities at the Konkola hospital.

Similarly, KCM owned and ran schools in the area at both primary and secondary levels where the teachers and other staff were employed by KCM. These schools were subsidised by KCM, although a small fee was charged to cover stationary costs.

7.2 Health and Safety

IMC's perception is that, in August 2005, KCM was committed to health and safety and expected to demonstrate a sustained long term improvement in their safety management and statistics. Table 7-1 below shows the Lost Time Injury Frequency Rate (LTIFR) for the three years prior to the Valuation Date.

Table 7-1 Lost Time Injury Frequency Rate

		Fatals	LTI	LTIFR	Operatives
2003	**Konkola**	2	34	0.46	4,526
	Nchanga	2	38	0.34	7,251
	Nkana	0	28	0.7	2,617
	Nampundwe	0	5	0.63	588
	Corporate	0	1	0.09	1,564
	Total	**4**	**106**		**16,546**
2004	**Konkola**	1	42	0.84	2,983
	Nchanga	3	37	0.4	6,304
	Nkana	0	26	0.76	1,979
	Nampundwe	0	4	0.7	475
	Corporate	2	4	0.4	1,892
	Total	**6**	**113**		**13,633**
2005 Jan to March	**Konkola**	1	2	0.13	3,046
	Nchanga	2	4	0.15	6,171
	Nkana	0	1	0.14	1,711
	Nampundwe	0	1	0.88	292
	Corporate	0	0	0	1,843
	Total	**3**	**8**		**13,063**

N.B. LTIFR is calculated per million man hours

Whereas the number and frequency rate for lost time injuries was showing a declining trend over the period the number of fatal accidents remained high compared with similar sized and types of operations in other African and first world countries.

7.3 IMC Forecasts

Starting from KCM's plans for corporate administration IMC has, where appropriate, made modifications based on the information available and our understanding of the assets as of 12th August 2005. Our approach has been to produce a set of cost projections which we consider achievable and optimal and which we believe a buyer might reasonably be expected to have applied when valuing KCM at 12th August 2005

7.3.1 Corporate Operating Costs

In the KCM LOM plan the Corporate operating costs comprise of two separate cost centres:

- Sales
- Administration

Figure 7-1 Below shows the historic operating costs for administration, in US$ M, and the cost of sales, in US$ per tonne shipped, for the two complete years prior to the Valuation Date together with the Budget and IMC's projection for 2005-06 complete year. The upward trend in administration costs from 2003 and 2004 was reversed in the first four months of 2005-06 but was projected by IMC to exceed the reduced Budget set by KCM.

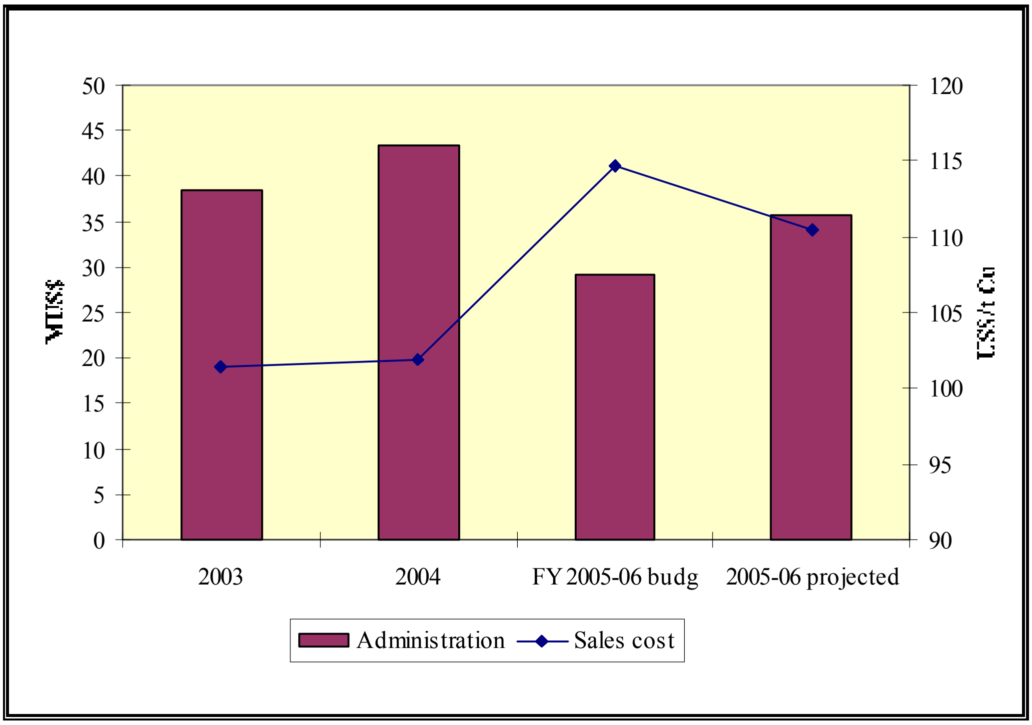


Figure 7-1 Corporate Administration and Sales Cost History

7.3.1.1 Cost of Sales History

Table 7-2 below shows a breakdown of sales cost for the two complete years and four months prior to the Valuation Date. It should be noted that transport accounted for the majority of these costs, which were wholly variable and dependant on shipped tonnes of copper cathode. Whereas, 2003 and 2004 show a consistent cost per tonne the expected freight increases included in the 2005-06 budget did not materialise to the full extent. IMC would expect a buyer to use the most recent freight charges as a starting point for its forward projections.

Table 7-2 Cost of Sales History

	2003 Actual ($)	2004 Actual ($)	Apr-Jul 05 Actual ($)	Apr-Jul 05 Budget ($)
Shipping volume	181,901	192,651	54,644	75,340
-Ocean Freight	5,122,376	4,846,838	1,546,913	1,923,943
-Inland Freight	9,474,256	10,716,272	3,173,464	4,994,930
-Clearing Charges	2,717,540	2,796,000	966,312	1,373,661
-Insurance	650,061	950,176	229,189	351,764
-Others	485,519	316,748	122,418	64,312
Total	**18,449,751**	**19,626,034**	**6,038,296**	**8,708,610**
Total per tonne shipped	101.4	101.9	110.5	115.6

7.3.1.2 Operating Cost History

Table 7-3 below shows a breakdown of the Corporate administration costs for the two complete years and four months prior to the Valuation Date. It should be noted that labour accounted for approximately 43% of these costs, which were mainly fixed and dependant on employee numbers. Whereas, 2003 and 2004 show labour costs rising this trend has been reversed in the first four months of 2005-06 as part of a budgeted intention to reduce the corporate manpower by 514 or approximately 28% in the full year.

Table 7-3 Corporate Operating Cost History

	2003 Actual ($)	2004 Actual ($)	Apr-Jul 05 Actual ($)	Apr-Jul 05 Budget ($)
Manpower	**17,325,708**	**18,568,471**	**4,637,502**	**4,053,522**
Redundancy provision	1,891,199	2,630,958	0	780,000
Environmental		1,964,195	0	677,339
Travelling	887,055	1,528,878	280,355	455,783
Medical	135,642	142,181	10,279	132,954
Food Stuffs	180,043	196,048	173,425	63,622
Training	264,614	209,702	282,258	730,482
Repair & Maint	2,416,043	2,882,648	140,211	277,607
Printing & Stationery	1,296,837	675,962	73,740	97,132
Telephone Expenses	1,158,111	944,870	61,137	62,660
Insurance	7,651,657	7,627,938	1,298,115	133,714
Legal Expenses	603,686	206,098	11,453	5,400
Consultancy	1,207,200	708,496	341,421	320,283
Vehicle Hire	54,543	170,136	0	3,072
Social Welfare	192,440	418,528	184,191	300,695
Others	2,513,624	3,000,291	3,995,721	-1,276,143
Rates & Taxes	428,234	824,401	5,671	770
Statutory Audit Fees	184,723	248,756	68,000	107,000
Management Fees		287,512	384,804	333,332
Operating projects	7,058	220,890	-37,960	228,644
Total	**38,398,416**	**43,456,958**	**11,910,323**	**7,487,868**

7.3.1.3 Factors Determining Operating Costs

IMC has developed forward projections based on the principles described in Section 3.5.3.2 above, where cost categories exhibit the same currency distribution as Konkola in Table 3-12.

7.3.1.4 Operating Cost Projections

IMC has concentrated on the most likely projections for sales and labour costs which accounted for 59% of the operating costs in the 4 month period just prior to the Valuation Date for each it has reviewed the KCM LOM projection to determine whether these reasonably reflect what a buyer in August 2005 might have adopted and, if not, made appropriate amendments.

Sales

In August 2005 cost of sales accounted for 34% of the Corporate operating costs, which are wholly variable. The average historical cost of sales over the two years and four month prior to the Valuation Date was US$102.8 per tonne of copper sold. Table 7-4 shows a comparison between the KCM LOM plan and the IMC Operational plan for each year. IMC has started from actual costs and sales in its projections but KCM has calculated the unit cost from a budgeted aggregate cost and an actual, below budget, sales volume for its 2005-06 starting point, which is in IMC's view unrealistic.

IMC considers that a buyer would include the most recent freight costs in its valuation as perceived in August 2005 where global shipping charges were showing marginal increases over previous years at this stage.

Table 7-4 Sales Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ per tonne of Copper)		102.8	
Annualised Sales Cost (US$ per tonne of copper)			
2005-06	153.5	110.7	-42.7
2006-07	153.5	110.5	-43.0
2007-08	153.5	110.5	-43.0
2008-09	153.5	110.5	-43.0
2009-10	153.5	110.5	-43.0
2010-11	153.5	110.5	-43.0

Manpower

In August 2005, manpower accounted for 39% of the Corporate administration operating costs which had been up to 45% in 2003. The operations had employed 1,843 people up to March 2005 but was being reduced in the first four months of 2005 towards and end of year budgeted target of 1,329. IMC considers that a buyer would expect to include a declining administrative manpower complement in its valuation especially connected with the closure of the Nchanga open pit and subsequently underground operations.

Wage Rates

IMC expects the rate changes described in Manpower part of Section 3.5.3.3 above to be incorporated into a buyer's August 2005 valuation.

Table 7-5 below shows the effects of the IMC labour cost projections compared with the KCM LOM projections, which start at a higher value but show a similar profile which achieves steady state from 2008-09. The budget and actual cost projection base effects combined with a 100% fixed element for labour can be seen to show a consistent higher difference between the projection profiles in each year.

Table 7-5 Corporate Labour Cost Comparison

	KCM LOM	IMC	Difference
Historical Average (US$ M)	17.4		
Annualised Labour Cost (US$ M)			
2005-06	11.1	13.9	+2.8
2006-07	12.2	14.6	+2.4
2007-08	12.2	15.2	+3.0
2008-09	9.8	12.5	+2.7
2009-10	9.8	12.5	+2.7
2010-11	9.8	12.5	+2.7

Total Operating Costs

Table 7-6 below shows IMC's projections of total corporate administrative costs, incorporating the projected profiles from the costs above, and compares these with the KCM LOM projections. As all the costs are predominantly fixed the manpower profile dominates the overall figures which reaches steady state in 2008-09. It is a coincidence that both values become US$21.9 M especially when considering KCM have made provisions for severance and environmental costs within its projections, which IMC has considered separately in Section 7.3.2 and the various IBUs.

It should be noted that the annual insurance cost had been significantly reduced by August 2005 compared to the historical average which was projected by both KCM and IMC to continue.

Table 7-6 Total Corporate Operating Cost Comparison

	KCM LOM	IMC	Difference IMC to LOM
Historical Average (US$ M)	40.2		
Annualised Total Operating Cost (US$ M)			
2005-06	26.3	27.4	+1.1
2006-07	27.4	23.9	-3.5
2007-08	27.4	24.5	-2.9
2008-09	21.9	21.9	
2009-10	21.9	21.9	
2010-11	21.9	21.9	

Table 7-7 below shows the first ten years of the KCM LOM and IMC's sales cost projections and covers the critical ramp up period for KDMP and the completion of the Nchanga operations, where the variances reflect the lower projected freight charges shown in the cost per shipped tonne.

Table 7-7 Sales Cost Projection Comparison, Years 1 to 10

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
	Proj (M$)	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**	**Proj (M$)**
KCM LOM Projections										
-Ocean Freight	6.7	6.8	7.0	8.6	8.3	8.2	8.2	8.2	8.2	5.6
-Inland Freight	17.4	17.7	18.3	22.3	21.6	21.5	21.5	21.4	21.3	14.6
-Clearing Charges	4.8	4.9	5.0	6.2	5.9	5.9	5.9	5.9	5.9	4.0
-Insurance	1.2	1.2	1.3	1.6	1.5	1.5	1.5	1.5	1.5	1.0
-Others	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Total	**30.2**	**30.8**	**31.9**	**38.9**	**37.5**	**37.3**	**37.4**	**37.2**	**37.0**	**25.5**
Total per tonne shipped	156.3	153.5	153.5	153.5	153.5	153.5	153.5	153.5	153.5	153.5
IMC Operational Plan Projections										
-Ocean Freight	5.7	6.0	6.2	6.4	7.0	7.8	7.1	7.1	6.8	6.4
-Inland Freight	11.6	12.4	12.6	13.2	14.4	16.0	14.6	14.6	13.9	13.2
-Clearing Charges	3.5	3.8	3.9	4.0	4.4	4.9	4.4	4.5	4.2	4.0
-Insurance	0.8	0.9	0.9	1.0	1.0	1.2	1.1	1.1	1.0	1.0
-Others	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5
Total	**22.2**	**23.5**	**24.1**	**25.2**	**27.4**	**30.4**	**27.8**	**27.9**	**26.5**	**25.1**
Total per tonne shipped	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5
Variance										
-Ocean Freight	-1.0	-0.8	-0.9	-2.1	-1.3	-0.5	-1.1	-1.1	-1.4	0.8
-Inland Freight	-5.7	-5.3	-5.7	-9.1	-7.2	-5.5	-6.9	-6.7	-7.4	-1.4
-Clearing Charges	-1.2	-1.1	-1.2	-2.1	-1.6	-1.1	-1.5	-1.4	-1.6	0.0
-Insurance	-0.4	-0.4	-0.4	-0.6	-0.5	-0.4	-0.5	-0.5	-0.5	-0.1
-Others	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4
Total	**-8.0**	**-7.3**	**-7.8**	**-13.7**	**-10.1**	**-7.0**	**-9.6**	**-9.3**	**-10.5**	**-0.4**
Total per tonne shipped	-45.8	-43.0	-43.0	-43.0	-43.0	-43.0	-43.0	-43.0	-43.0	-43.0

Table 7-8 below shows the first ten years of the KCM LOM and IMC's corporate administrative cost projections and again covers the critical ramp up period for KDMP and the completion of the Nchanga operations, where the variances are minimal exhibiting a similar profile. It should be noted that alone with the significant labour cost reduction upon the closure of the Nchanga operations KCM has projected a 50% and IMC a 40% reduction in the other cost categories from 2013-14, shown pictorially in Figure 7-2 below, and would expect an aggressive buyer to adopt a similar approach.

Table 7-8 Corporate Administration Cost Projection Comparison, Years 1 to 10

	2005-06 Proj (M$)	2006-07 Proj (M$)	2007-08 Proj (M$)	2008-09 Proj (M$)	2009-10 Proj (M$)	2010-11 Proj (M$)	2011-12 Proj (M$)	2012-13 Proj (M$)	2013-14 Proj (M$)	2014-15 Proj (M$)
KCM LOM Projections										
Manpower	11.1	12.2	12.2	9.8	9.8	9.8	9.8	9.8	5.9	5.9
Redundancy provision	2.3	2.3	2.3	1.9	1.9	1.9	1.9	1.2	1.2	1.2
Environmental	2.0	2.0	2.0	1.6	1.6	1.6	1.6	1.0	1.0	1.0
Travelling	1.2	1.2	1.2	1.0	1.0	1.0	1.0	0.6	0.6	0.6
Medical	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Food Stuffs	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Training	1.9	1.9	1.9	1.5	1.5	1.5	1.5	0.9	0.9	0.9
Repair & Maint	1.3	1.3	1.3	1.0	1.0	1.0	1.0	0.6	0.6	0.6
Printing & Stationery	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Telephone Expenses	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Insurance	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Legal Expenses	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Consultancy	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.3	0.3	0.3
Vehicle Hire	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Social Welfare	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Others	2.0	2.0	2.0	1.6	1.6	1.6	1.6	1.0	1.0	1.0
Rates & Taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory Audit Fees	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Management Fees	1.0	1.0	1.0	0.8	0.8	0.8	0.8	0.5	0.5	0.5
Operating projects	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Total	**26.3**	**27.4**	**27.4**	**21.9**	**21.9**	**21.9**	**21.9**	**17.4**	**13.5**	**13.5**
IMC Operational Plan Projections										
Manpower	13.9	14.6	15.2	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Redundancy provision										
Environmental										
Travelling	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Medical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Food Stuffs	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Training	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Repair & Maint	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Printing & Stationery	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Telephone Expenses	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Insurance	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Legal Expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Consultancy	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Vehicle Hire	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Social Welfare	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Others	5.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Rates & Taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory Audit Fees	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Management Fees	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Operating projects	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total	**27.4**	**23.9**	**24.5**	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**
Variance										
Manpower	2.8	2.4	3.0	2.7	2.7	2.7	2.7	2.7	6.6	6.6
Redundancy provision	-2.3	-2.3	-2.3	-1.9	-1.9	-1.9	-1.9	-1.2	-1.2	-1.2
Environmental	-2.0	-2.0	-2.0	-1.6	-1.6	-1.6	-1.6	-1.0	-1.0	-1.0
Travelling	-0.4	-0.4	-0.4	-0.1	-0.1	-0.1	-0.1	0.2	0.2	0.2
Medical	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.2	-0.2	-0.2
Food Stuffs	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Training	-0.8	-0.7	-0.7	-0.3	-0.3	-0.3	-0.3	0.3	0.3	0.3
Repair & Maint	-0.9	-0.9	-0.9	-0.6	-0.6	-0.6	-0.6	-0.2	-0.2	-0.2
Printing & Stationery	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Telephone Expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Insurance	1.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8
Legal Expenses	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0
Consultancy	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.7	0.7	0.7
Vehicle Hire	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Social Welfare	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4
Others	3.0	-0.5	-0.5	-0.1	-0.1	-0.1	-0.1	0.5	0.5	0.5
Rates & Taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Statutory Audit Fees	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Management Fees	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.7	0.7	0.7
Operating projects	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total	**1.1**	**-3.5**	**-2.9**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**4.5**	**8.4**	**8.4**

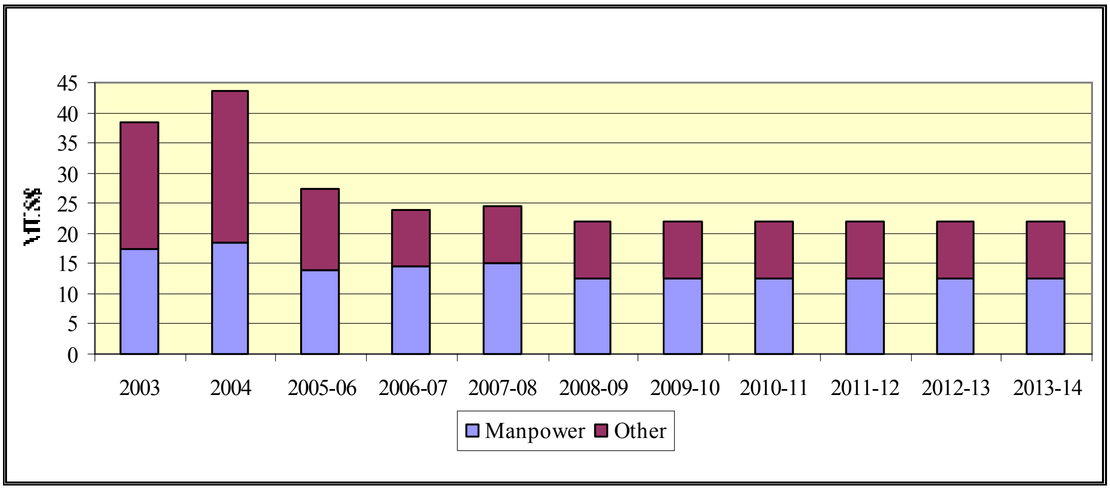


Figure 7-2 Administration Cost Projections

7.3.2 Severance Payments

Figure 7-3 below shows the total Company projected employee numbers, which are a summation of the individual business unit projections, together with the corresponding phased severance payments included in the IMC operating plan based on an average US$4,700 per employee, in 2005 real terms, paid to 90% of laid off employees where an individual redundancy programme exceeds 200 people.

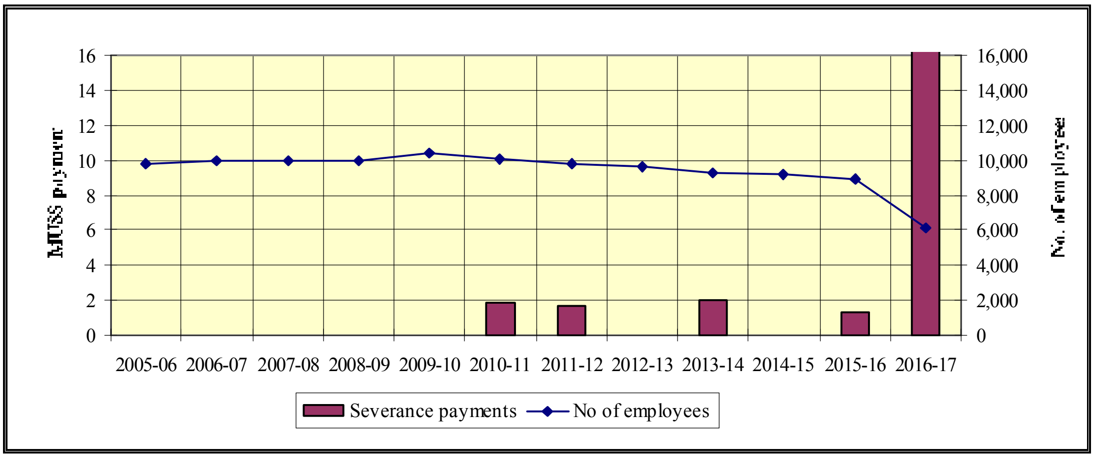


Figure 7-3 Manpower and severance Payment Projections

7.3.3 Corporate Capital Expenditure

All sustaining, project and environmental capital expenditure has been allocated to the relevant individual business unit within the KCM and IMC cost projections with the exception of an unspecified "others" category, which can be treated as a contingency fund for expenditure unforeseen in August 2005.

Table 7-9 shows the phasing from the KCM LOM and the IMC operating plan for the first eight years including the build up of KDMP and the winding down of Nchanga; whilst Table 7-10 shows the steady state period from 2014-15 onwards to 2034-35 and totals. IMC considers that this fund should be reduced to US$5 M per annum from 2015-16, two years earlier than the KCM LOM plan.

Table 7-9 Other Capital Projection Comparison, Years 1 to 8

		1	2	3	4	5	6	7	8
		2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
		Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
KCM projections	US$M		10	10	10	10	10	10	10
IMC projections	US$M		10	10	10	10	10	10	10
Variance	US$M								

Table 7-10 Other Capital Projection Comparison, Years 9 to 14 and 29

		9	10	11	12	13	14	29	Total
		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2034-35	
		Proj	Proj	Proj	Proj	Proj	Proj	Proj	Proj
KCM projections	US$M	10	10	10	5	5	5	5	185
IMC projections	US$M	10	5	5	5	5	5	5	175
Variance	US$M		5	5					-10

7.4 Upside Potential

All the upside potential initiatives have been considered by IMC in the individual business unit sections.

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Key Words : IMC; Rothschild; ZCI; Vedanta; Copper; Zambia

	Signature	Name / Designation
Production:		Julian Bennett Project Manager
Verification:		Jurgen Hermann Financial Analyst
Approval:		John Warwick Project and IMC Mining Director

Date: 15th January 2008

Annex A

QUALIFICATIONS OF CONSULTANTS

Annex A – Qualifications of Consultants

***J S Warwick** **Project Director**

B Sc Electrical Engineering (Hons), Newcastle University (1973); B Sc Mining Engineering (Hons), Nottingham University (1975); Mine Manager's 1st Class Certificate; Fellow Institute of Materials, Minerals and Mining; Chartered Engineer; European Engineer (Eur Ing).

30 years experience in the coal, base metals and industrial minerals mining industry and 6 years of directing Competent Person's Reports and Valuations.

*** J Bennett** **Project Manager and Mining Engineer**

B Sc Engineering in Mining (Hons), Royal School of Mines, London (1964); Associateship of the Royal School of Mines; Institute of Materials, Minerals and Mining (UK); Chartered Engineer.

40 years experience in surface and underground copper and gold mining operations and senior management.

*** N Scott** **Geologist**

B Sc Geology, London University (1966); Fellow Geological Society; Member Institute of Materials, Minerals and Mining; Chartered Engineer. Extensive experience of the international minerals industry.

30 years in consultancy in precious and base metals and industrial minerals and has substantial experience in many parts of the world including Sierra Leone.

***Dr N Holloway** **Metallurgical Process Engineer**

B Sc Joint Chemistry and Geology (Hons) Bristol University, (1971); M Sc Surface Chemistry and Colloids (Thesis - Wettability of galena) Bristol University (1972); Ph D Minerals Engineering/Chemical Engineering (Thesis - Solid-liquid separation using polymer flocculants), Birmingham University (1975); Fellow Institute of Materials, Minerals and Mining, Chartered Engineer.

30 years experience in precious and base metals, industrial minerals and coal specifically in process engineering.

*** R Wilkinson** **Metallurgical Process Engineer**

BSc (Hons) Chemical Engineering University of Edinburgh; Member Institute of Materials, Minerals and Mining; Chartered Engineer; Associate Member, Institution of Chemical Engineers.

35 years experience in the metal mining industry specifically in process engineering.

***J Coope** **Infrastructure Engineer**

BSc (Electrical Engineering) (Hons), Nottingham Trent University 1972, Chartered Engineer, Member, Institution of Electrical Engineers, Fellow, Institution of Mining and Metallurgy

35 years' experience in mining, mechanical/electrical engineering and project management.

***A Wilkie** **Environmental Engineer**

B.Sc. (1995) and B.Sc. Hons (1996, Geohydrology/Hydrology) achieved at the then University of the Orange Free State, Member of the International Association of Hydrogeologists, International Association of Impact Assessment and the Groundwater Division of the Geological Society of South Africa.

9 years experience in consulting within the geo-hydrological field, 7 thereof with companies focusing on the mining industry.

***G Berringer** **Environmental Engineer**

B. Sc Environmental Management and Geology, M.Sc Environmental Management University of Johannesburg, South Africa 2000 – 2006.

4 years experience in environmental compliance and Closure within the mining industry.

***J Hermann** **Valuation Engineer**

M Sc (Diplom-Ingenieur, 1973) and PhD (1989, thesis on computer aided production planning techniques) in Mining Engineering, Technical University of Berlin.

35 years experience in the metals and industrial minerals mining industry, in planning and management functions and as consulting engineer. Specific experience in technical-economic evaluation of mine operations as well as production and cost planning.

* - denotes visited operations.

Annex B

SCOPE OF WORK

LIMITATIONS AND EXCLUSIONS

MATERIALITY

Scope of Work

The Consultant's role will be to provide Rothschild with all the technical information it needs to establish the value of KCM's mining, processing and infrastructure assets and mineral reserves and resources. This will involve the Consultant analysing and interrogating KCM's own plans, forecasts and estimates for each of its operations and development projects and, if and where appropriate, amending and augmenting these so as to produce a set of projections which are mutually consistent, in conformity with applicable regulation and agreements with governmental authorities and which, in the professional opinion of the Consultant, fairly reflect the most likely operational outcome for each asset. The consultant will also analyse and report upon the factors to which each of its projections are most sensitive and provide a quantitative assessment of the risks on the downside and the opportunities to the upside of the "most likely" case, hereinafter referred to as "sensitivity analysis".

The Consultant will deliver a Report that will address, where applicable, the following matters in relation to each of KCM's operations and development projects:

Geology

A brief summary of the local economic geology: rock types, ore mineralisation and types, and structural features.

Reserves and Resources

KCM's reserve and resource estimates, including a description of the classification system used and the cut-off grade, dilution factors and economic assumptions in reserve calculations, together with the Consultant's commentary on the soundness of the reserve and resource classification and estimates, and the appropriateness of the assumptions upon which these are based. If the Consultant considers that reserves or resources are materially misstated (or that the economic assumptions upon which reserves are based differ markedly from those currently in general use elsewhere in the mining industry – in which regard the Consultant will liaise with Rothschild to agree these) it will make an approximation of the impact of the appropriate correction/amendment.

Mining Facilities

A description of all existing and/or planned mining operations at each asset including mining method(s) and equipment. The physical condition of the existing surface and/or underground workings and equipment shall be commented upon. The appropriateness of methods and equipment to conditions currently encountered in the workings, and to future anticipated conditions, shall be commented upon. The adequacy of on-going exploration to achieve levels of developed ore required by future forecasts of production shall be commented upon. The Consultant will also describe (and comment on the appropriateness and continuing viability of) the waste and tailings disposal methods and dump designs.

Mine Plans

Details of the last three years production from, and KCM's life-of-mine plan for, each operating and planned mine as well as historical records of, and future plans for, the extraction and processing of tailings, CRO and/or slag, together with details of the procedures and methods used to produce the respective mine development and waste/ore production schedules. The Consultant will give its views as to whether the plan is deliverable - and optimal - and, if it considers production levels are on balance more likely to exceed or fall short of those in the KCM plan, will revise these as so as to reflect in its own mine plan that which the Consultant considers to be the "most likely" outcome. The impact of any adjustment proposed by the Consultant in the mine's resource base (pursuant to (3.2) above) will be reflected in the Consultant's mine plan. Sensitivity analysis as described in (1) above will also be undertaken and the results set out in the Report. In the case of the Konkola Mine, the Consultant's mine plan shall assume that the Konkola Orebody Extension Project is implemented.

Metallurgical and other Process Plant

A description of each of KCM's existing and planned process plants, with commentary on the condition of each of the concentrators, the smelter, the refinery, the leach plant and the acid plants and the appropriateness of the design and equipment selection for each planned new or expanded plant. Historical records of throughput, production (distinguishing between different grades of product), recoveries and use of key consumables at each plant for the last three years. KCM's and the Consultant's forecasts of these same variables for each plant until the projected depletion of the relevant supplying ore/concentrate/tailings feedstock source(s). Historical records and projections should distinguish between the different KCM ore/concentrate/tailings feedstock source(s) and other material which is either bought in from – or tolled on behalf of - third parties. Projections of material to be treated on behalf of third parties should differentiate between third party material already contracted to be treated by KCM and that which KCM and/or the Consultant merely considers it likely that KCM will treat. Sensitivity analysis of the type described under (1) above should also be undertaken and the results set out in the Report.

Infrastructure

A brief description of KCM's principal infrastructure assets (concentrate transportation and handling, cathode handling and transportation, power, water, communications, warehousing, offices, workshops, medical, accommodation, sanitation and other social assets), with commentary regarding their reliability and state of repair.

Environmental

A summary of the environmental regulation and standards applicable to KCM and derogations from these, together with the Consultant's assessment as to the existing operations' compliance with these and, where the Consultant considers operations to be non-compliant, measures (and associated costs) required to be taken to bring them into compliance.

Operating costs

The Consultant shall provide (a) historical data for operating costs at each of KCM's operating facilities in each of the last three years and (b) KCM's projections of operating costs at each of its operating facilities and development/expansion projects, (in each case denominated in US dollars and split between fuel, electricity, maintenance spares, other consumables and labour), and comment on their reasonableness. The Consultant will provide an estimate of the proportions of KCM's operating costs which are incurred in Kwacha, Rand, US dollars and other currencies. After considering all factors known to it as a result of its analyses of KCM, the Consultant will provide its own view as to the "most likely" operating cost projections at each facility/project (split into the same categories as the KCM projections). The Consultant will identify the extent (if at all) to which KCM's and its projections include anticipated productivity changes and/or cyclical changes in consumable prices that either considers likely. The Consultant will also describe and comment upon KCM operating costs (infrastructural, transport, marketing, G and A, and other corporate costs which are not attributed to a specific asset or operation) so as to arrive at an exhaustive total of operating costs for KCM as a whole. The Consultant will also conduct sensitivity analysis as described under (1) above.

Capital Costs

The Report will address KCM's development and sustaining capital cost forecasts on an asset-by-asset basis (including infrastructural assets) and including capital costs associated with decommissioning and site remediation, and those otherwise necessary to ensure environmental compliance. The Consultant will comment on the status of the forecasts (for instance, as to whether contracts are actually in place for the works involved and the extent to which these are of a "fixed price" or cost reimbursable nature) and the level of contingencies included in the estimates. The Consultant will make any adjustments which it considers necessary or appropriate (a) to ensure consistency with its production forecasts (b) to ensure environmental compliance and (c) to place the forecasts on what it considers to be a "most likely outcome" basis. In so doing it will consider the possible impact of labour productivity and cyclical cost variations in the same manner as for operating costs, and the "most likely" forecast will be accompanied by a sensitivity analysis of the type described under (1).

Project Development Schedules

The Consultant will consider, and the Report address, the schedules KCM provides for the implementation of its development projects. Should the Consultant consider it likely that KCM will either fail to meet – or will improve upon - these schedules, it will adjust its own production and cost profiles accordingly.

Annex C

STANDARDS AND LEGISLATION

STANDARDS AND LEGISLATION

1 Reserves and Resources

1.1 Reserve and Resource Estimation Methods

Although KCM uses different modelling software for reserve and resource estimation at each of its Business Units (Konkola (Gemcon), Nchanga (Datamine) and Nampundwe (Excel-based)), the principles behind them are the same. Inevitably, the approach used at Nampundwe is simpler but is entirely valid.

The resource estimates are underpinned by a substantial, detailed database of drill hole and underground development sampling results built up since the mines were established. Sampling intervals (lengths) are appropriate, core recoveries were reported to be very good and the routine suite of analytical determinations (TCu, ASCu and sometimes TCo) suitable. Insufficient check analyses are being made at the present time and the use of a single density at Konkola, Nchanga and Nampundwe seems an unnecessary over-simplification. Anglo's checks on the density and assay results from selected surface drill holes for the Konkola Deep Mining Project (KDMP) showed no bias, although 25 pulp assay checks showed that the original (1999) KLB drill holes results (assay pulps) were consistently 3% higher. This is not considered a major issue.

Three global estimates of the KDMP 26-year life of mine resource made in 1998, 2000 and 2001 do not show significant variations as far as tonnage and TCu content are concerned. There are, however, differences in the ASCu grades, due to the use of different assumptions in their estimation.

1.2 Reserve Classifications

KCM used to classify its resources using the ZCCM classification system. This was based on the amount of development that had been completed and recognised three categories: Fully Developed, Partially Developed and Undeveloped. This was in many ways a practical approach but did not take sufficient account of geological risk and made no distinction between an insitu geological resource and a reserve in which allowance should be made for mining loss and recovery.

In order to overcome these problems and move in line with international practice, KCM adopted the first version of the South African Code for Reporting of Mineral Resources and Reserves (SAMREC) issued in 2000. This has many parallels with the JORC Code. The principles behind this classification are summarised in Figure A below.

Figure A Relationship between Exploration Results, Mineral Resources and Mineral Reserves

Mineral resource and reserve definitions in the 2002 SAMBEC Code are as follows:

A "Mineral Resource" is considered a concentration or occurrence of material of economic interest in or on the Earth's crust in such form and quantity that there are reasonable and realistic prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from a well constrained and portrayed geological model. Mineral Resources are subdivided, in order of increasing confidence and in respect of geoscientific evidence, into Inferred, Indicated and Measured categories.

Portions of a deposit that do not have a reasonable or realistic prospect of eventual economic extraction must not be included in a Mineral Resource; unless where the assessment of "reasonable and realistic prospects" is uncertain, details of such included resources must be given.

The term "reasonable and realistic prospects for eventual economic extraction" implies a judgement by the Competent Person in respect of the economic factors likely to influence the prospect of economic extraction, including the approximate mining parameters. In other words, a Mineral Resource is not an inventory of all mineralisation drilled or sampled, regardless of cut-off grades, likely mining dimensions, location or continuity. It is a realistic inventory of mineralisation which, under assumed and justifiable technical and economic conditions, might become economically extractable.

The term "Mineral Resource" covers the in-situ mineralisation which has been identified and estimated through exploration/assessment and sampling from which Mineral Reserves may be derived by the consideration and application of technical, economic, legal, environmental, social and political factors.

Mineral Resource estimates may include mineralisation below the selected cut-off grade to ensure that the Mineral Resources comprise bodies of mineralisation of adequate size and continuity to properly consider the most appropriate approach to mining. This includes dilution resulting from the requirements of any minimum mining width, or the inclusion of low-grade material for geotechnical reasons. Documentation of Mineral Resource estimates should clearly identify any such inclusions, and Public Reports should include commentary on the matter if considered material.

An Inferred Mineral Resource is that part of a Mineral Resource for which tonnage, grade and mineral content can only be estimated with a low level of confidence. The category is intended to cover situations where a mineral concentration or occurrence has been identified and limited measurements and sampling completed, but where the data are insufficient to allow the geological and/or grade continuity to be confidently interpreted. Confidence in the estimate is usually not sufficient to allow the appropriate application of technical and economic parameters or to enable an evaluation of economic viability. This category is not normally considered in economic studies.

An Indicated Mineral Resource is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed. Confidence in the estimate is sufficient to allow the appropriate application of technical and economic parameters and to enable an evaluation of economic viability.

A Measured Mineral Resource is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

A "Mineral Reserve" is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is inclusive of diluting materials and allows for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justifiable. Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proved Mineral Reserves.

A Probable Mineral Reserve is the economically mineable material derived from a Measured and/or Indicated Mineral Resource. It is inclusive of diluting materials and allows for losses, which may occur when the material is mined. Appropriate assessments, that may include feasibility studies, have been carried out, *including consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justifiable. It is estimated with a lower level of confidence than a Proved Mineral Reserve*

A Proved Mineral Reserve is the economically mineable material derived from a Measured Mineral Resource. It is estimated with a high level of confidence and is inclusive of diluting materials and allows for losses, which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, including consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction is reasonably justifiable.

KCM has subsequently adopted the 2006 version of the SAMREC Code, which allows for a proportion of Inferred Mineral Resources to be included in a proposed mine design. This is not permitted in the JORC Code.

1.3 Losses and Dilution

The conversion from in-situ resource to mining reserve, see Figure A, is made by application of a factor that takes account of mining loss and dilution which, is based on actual experience. These factors are summarised in Table A below. KCM was unable to provide IMC with data substantiating the use of these factors.

Table A KCM Tonnage and grade factors used in reserve estimation (as reported by SRK in 2002)

Unit	Factor (%)			
	Extraction	Dilution	Tonnage	Grade
Konkola No 1 Shaft			81.5	84.6
Konkola No 3 Shaft			74.2	87.0
Konkola No 3 Shaft (OCB Section)			72.0	90.0
Konkola Deep Mine Project			90.0	88.0
Nchanga Underground Block A Extension	75.0	10.0	89.0	
Nchanga Underground Chingola B Extension	60.0	10.0	89.0	
Nchanga Underground Class II Blocks in the LOM Plan	67.0	25.0		90.0
Nchanga Underground Class III Blocks in the LOM Plan	60.0	25.0		90.0
Nchanga Open Pit (NOP)			100.0	90.0
Nchanga Block A Open Pit			100.0	90.0
Nampundwe			61-71	85
COP DF			100.0	90.0

2 Environmental Issues and Management

2.1 Legislation

During the history of the KCM Operations the Zambian Legal Requirements as well as the International Finance Corporation (IFC)/ World Bank policies and guidelines have had an important role in the Environmental and Social Planning of the mining operations.

Transfer of ownership of the ZCCM assets to KCM took place in terms of a Development Agreement under the Mines and Minerals Act in 2004. Once KCM had brought its operations into compliance with legislative standards then general legislation applied, stabilised under the Development Agreement to apply in the form in force on 31 March 2000.

KCM committed to meeting GRZ and World Bank requirements for their facilities with 3 years of vesting, i.e. by 31 March 2003.

2.1.1 Zambian Requirements

The Mining and Minerals (Environmental) Regulations SSI No. 29 of 1997 outlines the process to be followed in producing an EIS for project approval by the Zambian authorities. The Mines Safety Department administers these regulations. In the case of mining projects the requirements of the Mining Environmental Regulations have precedence over the Environmental Protection and Pollution Control Regulations. The latter regulations outline the EIA process to be followed for non-mining projects.

Compilation of the EMP for KCM took into account World Bank guidelines, as well as Zambian legislative requirements, which are summarized as follows:

- There are no specific limits for the consumption of raw materials and energy, or the abstraction and consumption of water, but international pressure, availability of water and economic considerations determine use;
- Zambian requirements with respect to the quality of effluent discharges are similar to the World Bank and IFC requirements with notable exceptions being the concentrations of Total Suspended Solids and Total Copper, for which the latter are considerably stricter;
- Zambian air quality standards and limits for stack emissions are equivalent to World Bank guidelines except for particulate emissions from the smelter for which World Bank guidelines are stricter;
- Regulations for noise and vibrations exist which limit ambient levels in the surrounding environment and Zambian health regulations identify a number of environmental health risks as nuisances;
- Safety measures have to be provided around dangerous excavations and permission has to be obtained for undermining certain structures;
- Washing of hydro carbons into drainage systems is prohibited and other regulations exist with respect to hazardous substances;
- Tailings dams and dumps need to be constructed under professional supervision and there are restrictions regarding the location of dumps relative to mine workings; and
- From a social perspective, World Bank guidelines exist for the relocation of people and related aspects.

2.1.2 Equator Principle Requirements

The IFC is an investor in the KCM operations and thus all guidelines and standards must be adhered to by KCM. The KCM operations have been classified as a category A project in terms of the IFC and therefore are required to have an Environmental and Social Action Plan (Environmental Management Plan). The management plans outline the measures, mitigation, monitoring and management measures that need to be followed in order to eliminate adverse environmental and social impacts.

Should further developments or projects take place an environmental and social assessment must be completed prior to the development taking place.

2.2 Status

KCM is required to produce an Annual Environmental and Social Monitoring Report. Review of these documents has shown that although KCM is compliant with much of the legislation, however, there are areas where non-compliance is occurring and is repeated yearly without much change.

The major aspects of non-compliance and those that are having detrimental affects on the environment are summarised below:

- The release of pollutants such as SO_2 and particulates into the atmosphere at the Nkana Smelter. The target of 75% SO_2 capture is not being achieved and the limits according to the Air Pollution Control (Licensing and Emissions Standards) Regulations of 1996 are exceeded on a regular basis.
- The discharge of effluent water at the registered sites at all mines is monitored on a weekly basis. The results of the monitoring programmes continually show non-compliance with the Zambian Guidelines for waster water discharge. The major non-compliance in terms of water discharge is the high levels of TSS in the water. Most of the water discharged at the mines ultimately reaches the Kafue River, an important river in terms of ecology as well as sustaining the local population. Studies have shown that there has been an increase in the amount of sedimentation occurring in the Kafue which in turn has knock on effects. The major causes for the non-compliance are:
    - Spillages of tailings lines to tailing facilities;
    - Poor control of storm water flow in and around the sites;
    - Lack of storage capacity and siltation of pollution control dams and settling ponds;
    - Drains are in disrepair and many channels are filled with sediment;
    - Poor management of spillages and contaminated soils;
    - Pumping capacity is not sufficient to handle the amounts of water being discharged;
    - Lack of water recycling programmes.

2.3 Provision for Rehabilitation

A rehabilitation and decommissioning action plan has been compiled and forms part of the Final Environmental Management Plan (FEMP). In terms of legislation the rehabilitation and closure activities must conform to both Zambian guidelines (as shown in Table B) as well as World Bank Guidelines.

KCM are only responsible for the assets which fall on its surface right area. Therefore the closure plan only deals with those components belonging to KCM. Within the closure objectives a commitment was made to implement progressive rehabilitation activities during the life of mine. These activities are described in section 2.0 of the FEMP.

The overall objectives of mine site rehabilitation and closure are, in order of priority:

- Protect public health and safety;
- Reduce or prevent environmental degradation; and
- Allow a productive use of the mining area, similar to its original use or an acceptable alternative.

For most mine components, the rehabilitation and decommissioning costs were derived based on cost estimates determined by SRK in the 1997 EIS. These costs were updated in 2001 by applying an escalation factor to the costs and this was done every year when updating the closure costs.

Provision has been made for the rehabilitation of both present and future developments or operations and post closure monitoring and maintenance has also been estimated. The total closure cost estimate for KCM for 2005 is US$ 97,040,664 the costs do not take the Fitwaola Pit into consideration. IMC is of the opinion that the cost for closure has been underestimated and further studies need to be done to determine accurate costs. The costs are also not based on market related rates and have merely been increased by a fixed percentage per year from 1996. The rates for rehabilitation and closure have had a marked change since the original estimate was done and the escalating factor would not have taken that into consideration.

Although costs for closure have been calculated it is not known whether provision of for these costs has been and is continuing to be made. Although some progressive rehabilitation is being done, much of the planned rehabilitation during operation of the mines is not taking place. Such activities may include the progressive revegetation of inactive mining areas and overburden dumps. Therefore when the Decommissioning activities are undertaken at the end of the operational life of a facility, the proposed time and cost schedules will no longer be accurate and thus compromise the achievement of the closure objectives listed above.

Table B Closure Requirements under Zambian Law

Component	Requirement	Regulation
Notification to government/ application for closure	• Developer to apply to the Director of Mine Safety for a partial or complete closure of a mine one year before closure • The application should include an audit report on the environment surrounding the mine site which shall be prepared by an independent person	Mines and Minerals (Environmental) Regulations, Part 2, Regulation 6
Contents of Decommissioning and Closure Plan	1. Reasons for closure 2. Infrastructure: • Demolition of structures buildings foundations and removal of debris • Rehabilitation of the surface 3. Mine dumps and residue deposits: • Disposal facilities like pipes, solution, trenches, return water dams etc • Ongoing seepage, control of rain water • Long term physical and chemical stability • Final rehabilitation in respect of erosion and dust control 4. Sealing of underground mining operation: • Rehabilitation of dangerous excavations 5. Progress report of decommissioning: • A developer shall submit to the Director, annually, the progress of the decommission of the mining operating until the area is declared closed by the Director 6. Maintenance – A decommissioned site which requires maintenance until closure is approved by the Director, shall be maintained by the developer by: ▪ Rehabilitating the land ▪ Controlling water pollution ▪ Rehabilitating residue deposits	Mines and Minerals (Environmental) Regulations, Fifth Schedule Regulation 22
Closure of dumping site	• Developer to apply to the Director of Mine Safety **within thirty days** of ceasing any dumping operations. • The application for closure shall be accompanied by: 1. An audit report by an independent competent person on the environmental impact of the dump 2. A copy of the environmental impact statement 3. A copy of the records of the progress made in implementing the environmental impact statement	Mines and Minerals (Environmental) Regulations, Part 3, Regulation 20

Component	Requirement	Regulation
	4. A report on the progress on rehabilitating the dump indicating the environmental status of the dump and the surrounding areas and the amount of work still outstanding to rehabilitate the dump. This report shall be submitted every 12 months throughout the period the dump is being rehabilitated and decommissioned.	
Submission of reports for closed dumps	• The developer should submit to the Director of Mine Safety the following: 1. Any particulars of any dumping, building, mining operations or engineering operations which may affect the safety of the dump or any survey or tests 2. Any accurate plans and sections of every dump and the land adjacent to it, showing the extent of the dump from the date dumping operations ceased and decommissioning began 3. Information showing the chemical composition and amount of material deposited in tonnes 4. Any accurate plans of the land adjacent to the dump, which is within one thousand metres from the boundary of the dump 5. Any accurate sections of the strata underlying the dump, showing any variation in the thickness or character of the strata, which may affect the safety of the dump 6. A report updated annually, on the progress of rehabilitating the dump and the surrounding area 7. Any report relating to the dump as provided for under the regulations 8. Any instructions given by an inspector relating to the dump 9. A report on the progress of rehabilitating the dump and the surrounding area 10. The final audit report on the environment conducted by an independent person	Mines and Minerals (Environmental) Regulations, Part 3, Regulation 24
Closure of Open Pit and Underground Mine Workings	• Removal of equipment with potential for contamination of the subsurface soils or groundwater • Restrict access to underground workings by capping all surface openings	Requirement for obtaining mine site closure certificate
Surface water management	• Removal of dams • Restoration of natural drainage • Identify potential land use and visual impact	Requirement for obtaining mine site closure certificate
Clearing away of mining plant	• The holder of a mining right over land that ceases to be subject to the mining right shall remove from the land any mining plant brought on to, or erected upon, that land in the course of mining operations carried out under the mining right. This should take place within 6 months from the date on which the land ceased to be subject to the mining right or such longer period as the Director of Mine Safety may allow.	The Mines and Minerals Act No 31 of 1995, Part 9, Regulation 79
Post closure	• Post closure monitoring for 3 years or until results indicate that conditions are stable. Monitoring will	Requirement for obtaining mine

Component	Requirement	Regulation
monitoring	include 1. Ground water levels in U/G workings 2. Ground water quality 3. Land subsidence 4. Success of revegetation 5. Integrity of erosion control structures 6. Integrity of spillway structures 7. Discharge and stream water quality 8. Air quality	site closure certificate

Annex D

GLOSSARY OF TERMS

US$	United States Dollar
US$M	Million United States Dollars
Acid Plant	A plant attached to a roaster or smelter which converts sulphur-bearing gases to sulphuric acid (H_2S0_4).
Air pollution.	The presence of contaminant or pollutant substances in the air that do not disperse properly and interfere with human health or welfare or produce other harmful environmental effects.
Anode	The positively charged electrode in a direct current electrolytic cell. Anodes are cast in the smelter at approximately 99.7% Cu. They are converted into cathodes by electrolysis to 99.99% Cu.
Anticline	A strata fold that is concave downwards.
Aquifer	An underground geological formation, or group of formations, containing usable amounts of groundwater that can supply wells and springs.
Arenaceous	Said of a sediment or sedimentary rock consisting wholly or in part of sand-sized fragments, or having a sandy texture or the appearance of sand; pertaining to sand or arenite. Also said of the texture of such a sediment or rock.
Argillite	A compact rock, derived either from mudstone (claystone or siltstone), or shale, that has undergone a somewhat higher degree of induration than mudstone or shale but is less clearly laminated
Arkose	A feldspar-rich sandstone, typically coarse-grained and pink or reddish, that is composed of angular to subangular grains that may be either poorly or moderately well sorted; usually derived from the rapid disintegration of granite or granitic rocks
Assay	The percentage of a particular element or compound in a given sample.
Azurite	A monoclinic mineral, $2[Cu_3(OH)_2(CO_3)_2]$; forms vitreous azure crystals; a supergene mineral in oxidized parts of copper deposits associated with malachite; an ore of copper.
Basement	A name commonly applied to metamorphic or igneous rocks underlying the sedimentary sequence.
Billion	One thousand million.
Bioherm	A moundlike or circumscribed mass of rock built up by sedentary organisms such as corals, mollusks, and algae.
Block	Geological zone of ore
Block Caving	An inexpensive mining method in which large blocks of ore are undercut and allowed to break and cave under their own weight.
Borehole	A hole made with a drill, auger or other tool for exploring strata in search of minerals.
Bornite	Dark blue, purple or reddish copper-iron sulphide mineral containing 63% copper
By-product	Material, other than the principal product, that is generated as a consequence of an industrial process.
Capex	Capital expenditure
Cash Flow	The sum of cash generated and spent by a business, usually computed on an annual basis.
Cathode	The negatively charged electrode in a direct current electrolytic cell on which the copper is deposited in a pure form (99.99% Cu).

Cave (caving)	To allow a mine roof to fall without retarding supports or waste packs.
Chalcocite	A sulphide mineral of copper common in the zone of secondary enrichment.
Chalcopyrite	A brassy-coloured mineral composed of copper, iron and sulphur containing 34 percent copper.
Channel sample	Material from a level groove cut across an ore exposure to obtain a true cross section of it.
Chrysocolla	A monoclinic mineral, $(Cu,Al)_2H_2Si_2O_5(OH)_4.nH_2O$; cryptocrystalline or amorphous; soft; bluish green to emerald green; forms incrustations and thin seams in oxidized parts of copper-mineral veins; a source of copper and an ornamental stone.
Concentrate	Material that has been separated from an ore which has a higher concentration of mineral values than the mineral values originally contained in the ore. Concentrates are produced in a plant called a concentrator.
Concentrator	Equipment used in the reduction of ore
Conglomerate	A coarse-grained clastic sedimentary rock, composed of rounded to subangular fragments larger than 2 mm in diameter (granules, pebbles, cobbles, boulders) set in a fine-grained matrix of sand or silt.
Conveyor	A rubberised belt running on rollers transporting the coal or other material from the faces to the endpoints. They can be reversed and used for manriding (carrying personnel to their working places.
Core	A cylindrical sample of rock obtained during core drilling.
Covellite	A hexagonal mineral, CuS; metallic indigo blue with iridescent tarnish; soft; a supergene mineral in copper deposits; a source of copper.
Crush, Crushing, Crushed	A mechanical method of reducing the size of rock.
Crusher	A machine for crushing rock.
Cu	Copper
Cuprite	An isometric mineral, Cu_2O; red (crimson, scarlet, vermillion, brownish-red); sp gr, 6.1; in oxidized parts of copper veins; an important source of copper.
Cut and Fill	A method of stoping in which ore is removed in slices, and the resulting excavation filled with waste material (backfill) which supports the walls of the stope when the next cut is mined.
Deposit	An area of resources or reserves identified by surface mapping, drilling or development.
Development	Excavations or tunnels required to access the coal or ore. (i) The initial stages of opening up a new mine, and/or (ii) The tunnelling to access, prove the location and value, and allow the extraction of ore.
Diamond Drilling or Core Drilling	A drilling method, where the rock is cut with a diamond bit, attached to hollow rods. It cuts a core of rock, recovered in cylindrical sections for geological analysis.
Dilution	The contamination during the mining process of excavated ore by non-ore material from the roof, floor or in-seam partings
Dip	The angle that a structural surface, i.e. a bedding or fault plane makes with the horizontal measured perpendicular to the strike of the structure.
Discount Rate	The interest rate at which the present value, if compounded, will yield a cash flow in the future.

Disposal	Final placement or destruction of toxic, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases.
Dolomite (dolomitic)	A carbonate sedimentary rock consisting of more than 50% to 90% of the mineral dolomite
Down-Dip	Parallel to or in the general direction of the dip of the reef, stratum, vein seam or bed.
Drillhole	A circular hole made in rock, often in conjunction with a core barrel in order to obtain a core sample.
Drives - related to mining	A horizontal excavation or tunnel.
Dump	A site used to dispose of solid wastes without environmental controls.
Dyke	A discordant tabular body of igneous rock that was injected when molten, that cuts across the structure of the adjacent country rock.
Electrolytic Refining	Process using electric current to transport metal ions from an anode via a solution (electrolyte) to a cathode.
Emission	Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities, from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts.
Environment	The sum of all external conditions affecting the life, development, and survival of an organism.
Environmental audit	1. An independent assessment of the current status of a party’s compliance with applicable environmental requirements. 2. An independent evaluation of a party’s environmental compliance policies, practices, and controls.
Exploration	The search for mineral. Prospecting, sampling, mapping, diamond drilling and other work involved in the search for mineralisation.
Facies	A term of wide application, referring to such aspects of rock units as rock type, mode of origin, composition, fossil content, or environment of deposition.
Fault	A structural discontinuity in the earth's crust formed by movement between adjacent blocks resulting from tectonic forces.
Fault Throw	The amount of vertical displacement in an upward or downward direction produced by a fault.
Float	The product of the flotation process
Flotation	A recovery process by which valuable minerals are separated from waste to produce a concentrate. Selected minerals are induced to become attached to air bubbles and float.
Flux	A substance that absorbs the mineral impurities, or promotes the fusing of minerals or metals, or prevents the forming of oxides.
Fold	Any bending or wrinkling of rock strata.
Footwall	The underlying side of a fault, an orebody, or mine workings. An assay footwall is the lower surface of an orebody which separates ore- and waste-grade material.
Galena	A metallic grey or black mineral consisting of lead sulphide.
Gangue	The valueless minerals in an ore; that part of an ore that is not economically desirable but cannot be avoided in mining. It is separated from the ore minerals during concentration.

Grade	The relative quality or percentage of metal content.
Grade (ore)	The classification or value of ore.
Granite (granitic)	Broadly applied, any crystalline, quartz-bearing plutonic igneous rock.
Grinding	Size reduction of crushed rock into relatively fine particles.
Groundwater	The supply of fresh water found beneath the Earth's surface (usually in aquifers), which is often used for supplying wells and springs. Because groundwater is a major source of drinking water, there is growing concern about areas where leaching agricultural or industrial pollutants or substances from leaking underground storage tanks are contaminating it.
Hanging wall	The overlying side of a fault, an orebody or mine workings. An assay hangingwall is the upper surface of an orebody which separates ore- and waste-grade material.
Haul Truck	A self propelled vehicle used to transport material.
High wall	The face of the excavation limit where the depth from original ground level is greatest
Highgrading	Intentional concentration of mining operations in the highest grade areas of a mineral deposit.
Hoisted	Coal, ore, men or materials lifted up the shaft to surface
Horizon	a layer or level with particular characteristics or representing a particular period.
Hydrocyclones	Cyclones using waterbased material
Hydrology	The science dealing with the properties, distribution, and circulation of water.
Hydrometallurgical	Of or pertaining to hydrometallurgy; involving the use of liquid reagents in the treatment or reduction of ores
Hydrothermal	relating to or denoting the action of heated water in the earth's crust
Infrastructure	The basic facilities, equipment, roads, and installations needed for the functioning of a mining system.
In Situ	In place, i.e. within unbroken rock.
Intrusion	Any injection of igneous material into country rock.
Isocline (isoclinal)	A fold whose limbs are parallel.
km	Kilometre
kt	Thousand metric tonnes
kV	kilo Volt
kVA	Kilo Volt Amperes
kW	Kilo Watts power rating
kWh	Kilowatt hour
Leach Process	To dissolve mineral or metals out of the ore using acids or other solutions.
Leachate	A liquid that results when water collects contaminants as it trickles through wastes, agricultural pesticides, or fertilizers.
Lease	Contract between two parties enabling one to search for and/or produce minerals from the other's property.
Level	The workings or tunnels of an underground mine which are on the same horizontal plane. Level numbers usually designate depth below the shaft collar.

Limestone	A sedimentary rock consisting of more than 50% by weight of calcium carbonate, primarily in the form of the mineral calcite,
Lithology	The character of a rock described in terms of its structure, colour, mineral composition, grain size, and arrangement of its component parts; all those visible features that in the aggregate impart individuality to the rock.
Loading station	Point where ore or waste is transferred to another transport system
LOM	Life of Mine
Losses - Geological	Ore lost due to unpredictable geological phenomena.
Losses - Mining	Ore lost due to less than perfect mining operations.
M	Million
Magnetite	A magnetic ore of iron - 8[$FeOFe_2O_3$].
Malachite	A monoclinic mineral, $Cu_2CO_3(OH)_2$; bright green; occurs in oxidized zones of copper deposits; a source of copper.
Matte	An impure product of the smelting of sulphide ores, especially those of copper or nickel.
Mechanised Mining	Mining operations which are partly or fully conducted using machines powered by electricity or diesel fuel.
Metallurgy	The practice of extracting metals or minerals from ores and preparing them for sale.
Mica(s)	A common rock-forming mineral in igneous, metamorphic, and sedimentary rocks, with a distinct cleavage.
Mill Feed	The point at which the ore is fed into the mill prior to processing
Milling/Mill	The comminution of the ore, although the term has come to cover the broad range of machinery inside the treatment plant where the minerals and/or metals are separated from the ore.
Mineable	Capable of being mined under current mining technology and environmental and legal restrictions, rules and regulations.
Mined-out	An area where all economic material has been extracted.
Mineral Deposit	A mineral occurrence of sufficient size and grade to have potential or existing commercial value; sometimes referred to as mineralisation.
Mineral Rights	The ownership of the minerals on or under a given surface with the right to remove the said minerals.
Mineralisation	Any mass of host rock in which minerals of potential commercial value occur.
Mining Licence	Permission to mine minerals from a Mineral Rights area.
Mitigation	Measures taken to reduce adverse impacts on the environment.
Monitoring	Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements or pollutant levels in various media or in humans, animals, and other living things.
Mt	Million metric tonnes
Mtpa	Million tons per annum
Mtpy	Million metric tonnes per year
MV	Mega Volt
MVA	Mega Volt Amps

MW	Megawatt
Native Copper	Copper metal occurring naturally.
Net Present Value	The sum of a series of discounted cash flows.
Net present value, (NPV)	The present value of the net cashflow of the operation, discounted at a rate, which reflects a combination of the cost of capital of the company and the perceived risk attaching to the project or operation.
NPV	Net present value
Open Pit	Surface mining in which the ore is extracted from a pit. The geometry of the pit may vary with the characteristics of the orebody.
Open Pit Mine	A mine working or excavation open to the surface where material is not replaced into the mined out areas.
Opex	Operating expenditure
Ore	The naturally occurring material from which a mineral or minerals of economic value can be extracted profitably or to satisfy social or political objectives. The term is generally but not always used to refer to metalliferous material, and is often modified by the names of the valuable constituent; e.g., iron ore
Orebody	A continuous, well-defined mass of material of sufficient ore content to make extraction economically feasible.
Outcrop	The part of an ore body or rock formation that intersects the surface of the ground.
Overburden	Sterile soil and rock material overlying the coal
Oxide	That portion of a mineral deposit within which all or the majority of sulphide minerals have been oxidised, usually by surficial weathering processes.
pH	A measure of the acidity or alkalinity of a liquid or solid material.
Pillar(s)	An area of ore left during mining to support the overlying strata or hangingwall in a mine. Blocks of ore left intact to act as support for shafts or other underground workings.
Pit	A hole in the ground – an excavation below original ground level – a surface mine may comprise one or more pits
Plant	Fixed or moveable equipment required in the process of winning or processing the ore.
Potable water	Water that is safe for drinking and cooking.
Prospect	A mineral deposit with insufficient data available on the mineralisation to determine if it is economically recoverable, but warranting further investigation.
Pyrite	A brassy-coloured mineral of iron sulphide (containing 53 percent sulphur):
Pyrrhotite	A monoclinic and hexagonal mineral, FeS; invariably deficient in iron; variably ferrimagnetic; metallic; bronze yellow with iridescent tarnish.
Quartz	A mineral compound of silicon and oxygen, generally white-coloured to transparent.
Quartzite	A metamorphic rock consisting mainly of quartz and formed by recrystallisation of sandstone or chert by either regional or thermal metamorphism.
Refractory Ore	Any ore that does not respond to conventional mineral processing to produce acceptable product recoveries without an intermediate step to address its refractory attributes.
Refinery	An industrial installation where a substance is refined

Rehabilitation	Land restored to its former condition
Reserve	The quantity of mineral that is calculated to lie within given boundaries. It is described as total (or gross), workable, or probable working, depending on the application of certain arbitrary limits in respect of deposit thickness, depth, quality, geological conditions, and contemporary economic factors.
Resource	A concentration of naturally occurring solid, liquid, or gaseous material in or on the Earth's crust in such form and amount that economic extraction of a commodity from the concentration is currently or potentially feasible.
Reverberatory Furnace	A furnace, with a shallow hearth, usually non-regenerative, having a roof that deflects the flame and radiates the heat toward the hearth or the surface of the charge.
Rights - Surface Rights - Mining Rights	The ownership of the surface land under which minerals occur. Ownership of right to mine the ore
ROM	Run of mine
Room	The excavated tunnel between the pillars in the underground mine workings.
Room and Pillar Mining	A method of mining flat-lying deposits in which the mined areas, or rooms, are separated by pillars of lesser or equal size.
Runoff	That part of precipitation, snowmelt, or irrigation water that runs off the land into streams or other surface water; can carry pollutants from the air and land into the receiving waters.
Sample	A representative fraction of a coal seam collected by approved methods, guarded against contamination, and analysed to determine the nature, chemical, mineralogical or petrographic composition, percentage content of specified constituents, and heat value.
Sampling	Taking small pieces of rock at intervals along exposed mineralisation for assay (to determine the mineral content).
Screen	A device for separating by size
Schist	A strongly foliated crystalline rock, formed by dynamic metamorphism, that can be readily split into thin flakes or slabs due to the well developed parallelism of more than 50% of the minerals present.
Sedimentary	Formed by the deposition of solid fragmental material that originates from weathering of rocks and is transported from a source to a site of deposition.
Sediments	Soil, sand, and minerals washed from land into water, usually after rain. Sediments pile up in reservoirs, rivers, and harbours, destroying fish-nesting areas and holes of water animals and clouding the water so that needed sunlight may not reach aquatic plants. Careless farming, mining, and building activities will expose sediment materials, allowing them to be washed off the land after rainfalls.
Shaft	A mine-working (usually vertical) used to transport miners, supplies, ore, or waste.
Shovel and truck mining	Excavating overburden, interburden and coal using stand-alone excavators loading into dump trucks, dumpers and highway trucks
Silica	The chemically resistant dioxide of silicon, SiO_2
Siliceous	Said of a rock containing free silica
Slag	Stony waste matter separated from metals during the smelting or refining of ore
Slimes	Water based waste product
Slurry	A suspension of coal or waste in water

Smelting	Thermal processing whereby molten metal is liberated from beneficiated ore or concentrate with impurities separating as lighter slag. The plant where this is performed is called a smelter.
Stockpile	An accumulation of ore or mineral built up when demand slackens or when the treatment plant or beneficiation equipment is incomplete or temporarily unequal to handling the mine output; any heap of material formed to create a reserve for loading or other purposes.
Stope	The underground excavation from which ore is extracted.
Stoping	The act of excavating ore, either above or below a set level, in a series of steps in an underground mine.
Strata	Layers of sedimentary rock.
Strike	Bearing of direction of a horizontal line on the surface of a planar feature; 90% to the true dip.
Strike Length	Length of a feature in the strike direction.
Stripping	Non economic material which must be removed to expose ore in an open-pit mine or the process of removing such material to expose ore.
Stripping ratio, (SR)	The amount of overburden that must be removed to gain access to a unit amount of coal. This is normally reported as bank cubic metres (bcm) overburden per recoverable tonne of coal (bcm/t).
Sulphide	A mineral characterised by the bonds of sulphur with a metal or semi-metal, such as pyrite, FeS2 (iron sulphide). Also a zone in which sulphide minerals occur.
Sump	A pit or tank that catches liquid runoff for drainage or disposal.
Supergene	Mineralisation formed by leaching, transportation and deposition via groundwater.
Surface water	All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc.); also refers to springs, wells, or other collectors that are directly influenced by surface water.
Suspended solids	Small particles of solid pollutants that float on the surface of or are suspended in sewage or other liquids. They resist removal by conventional means. See also Total suspended solids
Sustaining Capital	Periodic capital expenditures required to replace or overhaul equipment. Also known as replacement capital.
Syncline	A strata fold which is concave upwards.
t	Metric tonne = 1000 kg
Tailing(s)	The fluid slurry after treatment and extraction of the economically extracted mineral.
Tailings Dam	One to which the slurry is transported, the solids settling while the liquid may be withdrawn.
Talc	A soft, monoclinic and triclinic mineral, $2[Mg_6(OH)_4(Si_8O_{20})]$; has a greasy or soapy feel;
Tankhouse	A building in which an electrolytic refinery is housed; the refinery consists of tanks in which electrolytic refining takes place.
TCu	Total copper
Thrust	An overriding movement of one crustal unit over another, such as in thrust faulting.
Topographical	The physical features of a district or region delineated on a map.

Total suspended solids (TSS)	A measure of the suspended solids in wastewater, effluent, or water bodies. See also Suspended solids
tpa	Tonnes per annum = per year
tpd	Metric tonnes per day
tpm	Tonnes per month.
tpy	Metric tonnes per year
trenches	Lines excavated to a pre determined depth to establish the geological structure of a deposit
Ventilation	Mine workings are usually subdivided to form a number of separate ventilating districts. Each district is given a specified supply of fresh air and is free from contamination by the air of other districts. Accordingly, the main intake air is split into the different districts of the mine. Later, the return air from the districts reunite to restore the single main return air current at or near the upcast shaft.
Wastewater	Spent or used water from individual homes, communities, farms, or industries that contains dissolved or suspended matter.
Water pollution	The presence in water of enough harmful or objectionable material to damage water quality
Workable	See mineable
Working Capital	Accounts receivable less accounts payable.