City Capital Corporation Limited

Mining

Russian Gold Mining – A Sector Review

April 2004

- **Russia was the world's fifth largest gold producer in 2003**
- **The country has significant known, but untapped, 'hard rock' gold resources**
- **The investment climate is improving, with lower taxes and a better understood legal regime**
- **Western listed junior gold companies have had considerable success in Russia – and now the majors are getting involved**
- **Russian gold production is expected to grow by 40% in the next five years**

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Russian Gold Mining

"All that glisters is not gold."

- The Merchant of Venice (II, vii)

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- **Russian gold production in 2003 totaled 184t.** This puts the country in fifth place after South Africa, Australia, the USA and China. In 2003 the total production was estimated at 184t, an increase from 2002 and 33% above the level in 1999. In contrast, gold production in South Africa, Australia and the USA fell from 1999 to 2003.
- **Approximately 50% of Russia's gold production in 2003 was from hard-rock mines**, with the rest from alluvial operations. This is a major increase from five years ago, when hard-rock mines only accounted for around 20% of the total gold production.
- **Hard-rock vs. alluvial deposits.** The increased production from hard-rock mines is linked to the spread of known resources – 80% of the estimated resources in the country are in hard-rock deposits, with just 20% in alluvial deposits.
- **Improved investment climate in Russia.** Since the 1998 currency crisis, the investment climate in Russia has improved considerably. Gold miners are now able to directly export their gold production and the 5% export tax has been scrapped. The corporate tax rate has been cut to 24% from 35%. Licensing can still be a thorny issue, but this is now better understood and the courts are prepared to back license holders.
- **Western listed Companies strong share performance.** Several junior Western listed gold mining companies have begun operations in Russia in the past few years. During 2003 the shares of these companies increased by more than 200% on average – well above the 12% gain on the FTSE 100 Index and better than the 42% gain by the FTSE Gold Mining Index.
- **Increasing Russian Gold production.** The expansion plans announced by the Russian gold miners covered in this report will add around 75t to their annual gold production by 2008. Even if the other gold mining operations in Russia on balance just maintain their 2003 level of gold production, this will see Russia's total gold production increase by approximately 40% from 2003 to 2008. With an estimated production of approximately 260t in 2008, this would see Russia rivaling Australia and the USA for the No. 2 slot in the world gold production table.
- **Declining Gold production from 'mature producers'.** Gold production in many of the major producing countries has been in decline in the past 3-4 years. South Africa, Australia, the USA and Canada may now be seen as 'mature' producers, with the chances of a major new discovery (the Witwatersrand or the Carlin Trend) being small. In contrast, Russia is a vast country whose gold mining potential has been underdeveloped through a lack of capital and, to a lesser extent, technology. This is now changing, with Western money and know-how being made available.

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Roger Chaplin began his career in mining analysis in 1979, after completing an MBA at Cranfield. He worked for Gold Fields of South Africa in Johannesburg from 1979 to 1987, covering gold mining, base metals and coal companies. In 1987 he moved back to London and joined Laing & Cruickshank (latterly Credit Lyonnais Securities) as a gold mining analyst. In 1993 he moved, as Head of Research, to help to set up T. Hoare & Co., an independent brokerage focusing on mining and natural resources. T. Hoare & Co was taken over by Canaccord Capital in 1998. Roger covered the Canadian diamond scene from an early stage and also analysed the major London listed mining stocks, including Rio Tinto, Anglo American, BHP Billiton and Lonmin. He became an independent mining analyst in 2003.

After graduating from King's College London, Chris Pearson worked in the mining industry for Consolidated Gold Fields in London, North America and Africa from the late 1970's and since 1987 for various banks/brokers in London. Between 1996 and 1999 he worked as a Pan-European mining analyst at Robert Fleming Securities and has since then mostly worked in the capacity of an independent equity research consultant to companies and stockbrokers. His responsibilities have included covering the global metals and mining sector and commodities. In particular, he has significant experience in researching the international gold sector. At Robert Fleming Securities he was ranked 7th in the 1997-98 Extel UK Survey of sell-side mining analysts and was also ranked 7th in the Reuters Survey in the same year. Chris is a Member of the Institution of Materials, Metallurgy and Mining (MIMMM) and is regulated by the Financial Services Authority.

Additional information is available on request from 3C.

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Executive Summary

Russia can be seen as “The Last Frontier” in gold mining, with vast under-developed resources that will allow strong growth in the future. This is in contrast with the current leading producers (South Africa, Australia, the USA) where the gold mining industry is mature and the ground has been well explored and developed.

Russia was ranked No. 5 gold producer in the world in 2003, at 184t. Production has grown by 33% in the past five years – and we estimate that it is set to grow by 40% in the next 5 years, to around 260t, based just on the plans of the nine companies covered in this report. This does not include any production from the giant Sukhoi Log deposit, due to be auctioned later this year, which could supply as much as 30t per annum.

Until now the Western companies operating in Russia have been relatively junior.

On this basis, Russian gold production will be on a par with that of Australia and the USA by 2008 – and possibly even ahead of them, as No. 2 behind South Africa.

Russian gold production in the past has come 80% from placer mining, run by large numbers of small-scale artisanal operators, and only 20% from hard rock mining (underground or open pit). But the resources are 80% in hard rock deposits and only 20% in placer deposits. To develop the hard rock deposits requires capital and technology – which is where the Western companies come in.

Until now the Western companies operating in Russia have been relatively junior, though they have also generally been highly successful. The entry of Barrick Gold, through its deal with Highland Gold, is a signal that the market is changing – and Norilsk Nickel wanting to generate 20% of its revenues from Russian gold production reinforces that.

Western listed Russian gold miners on average saw their share prices rise by over 200% in 2003.

The legal and fiscal regime in Russia has been improving. Gold miners are now able to sell their production abroad, with no export taxes to pay. The corporate tax rate has been cut to 24% of profits, low by Western standards though other local taxes and royalty payments account for 10% of sales. In addition, the legal framework is better understood and we have seen fewer problems in the past couple of years over lost licenses or ‘title-grabbing’ by local Russian companies.

The Western listed Russian gold miners had a very successful year in 2003 – on average their share prices rose by over 200%. Yet the ratings (in terms of capital per ounce of resources / production) are still undemanding, at around one-third to one-half the levels applied to similar companies operating in North America and Australia.

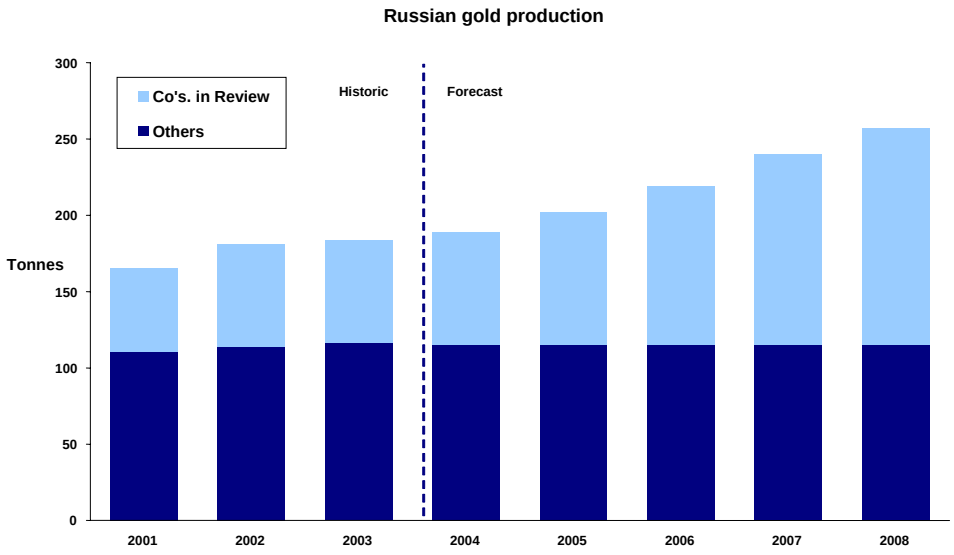
We have reviewed eight Western listed Russian / FSU gold miners in this report, plus Norilsk Nickel.

- We consider **Norilsk Nickel**, **Bema Gold** and **Kinross Gold** to be too diverse to be of interest as Russian gold plays – despite the fact that Norilsk is now by far the largest Russian gold miner, with +20% of the country’s production in its control.
- Of the remaining six, two were already significant producers in 2003 – namely **Highland Gold** and **Peter Hambro**, both with around 200koz of

production. These two companies also have plans in place to grow their gold production to around 500-600koz per annum by 2008.

- **Celtic Resources** was a smaller producer in 2003, at around 60koz of gold under control, but plans to grow production even more strongly, to around 650koz by 2008.
- **High River Gold** has 51% of the Russian company Buryatzoloto, which produced around 150koz of gold in 2003. The Company is developing another mine (Berezitovoye), but probably needs to reorganise the corporate structure to be given full recognition by the market.
- **Oxus Gold** changed its management and name in late 2002 – and produced its first gold at the start of 2004. The company has had a strong performance, but also has plans to grow to around 450koz of gold by 2008. Oxus operates in Uzbekistan and Kyrgyzstan, rather than Russia itself, and this is therefore, not a Russian pure play.
- **Trans-Siberian Gold** is the newest entrant of the Russian gold plays, listing on AIM in November 2003. The company has just completed the Bankable Feasibility Study for its first mine, Asacha. The start of mine development and further positive exploration results should see the market accept TSG as a serious Russian gold producer.

Exhibit 1. Historic and forecast Russian gold production



Source: 3C estimates

Strong growth in Russian gold production in the next few years, make the sector an exciting one for investors.

The prospects for Russian gold mining are clearly positive. The gold resources are available, the technology and operating skills are available - and now the Western capital is available.

This combination will see strong growth in Russian gold production in the next few years, making the sector an exciting one for investors.

Russia's place in world gold mining

Russia is ranked No. 5 in the world for gold production in 2003, at an estimated 184t, after South Africa, Australia, the USA and China. Over the past five years Russia's gold production has grown by 33%, while most of the other major gold producing countries have seen little growth and even falling production. The changes in gold production from 1999 to 2003 (as estimated from GFMS, the USGS and other sources) are shown in the table below.

Exhibit 2. World gold production, 1999-2003

Country	1999	2000	2001	2002	2003	Change 1999-2003
South Africa	449	428	394	395	376	-16.3%
Australia	301	295	284	275	290	-3.7%
USA	341	353	335	298	266	-22.0%
China	170	180	185	190	195	14.7%
Russia	**138**	**154**	**165**	**181**	**184**	**33.3%**
Indonesia	152	140	183	158	175	15.1%
Canada	158	154	160	149	165	4.4%
Peru	128	133	138	138	150	17.2%
Rest of World	737	754	779	808	800	8.5%
Total	**2,574**	**2,591**	**2,623**	**2,592**	**2,601**	**1.0%**

Source: GFMS, USGS, SA Chamber of Mines, ABARE, The Gold Institute, 3C estimates

South Africa remains the world's largest gold producing country, but its production rate has been falling steadily over the past five years (and more) and the resource base, while still large, is not expected to expand in the future. A similar picture is seen in Australia and the USA, with the latter also being under more pressure from environmentalists (e.g. the anti-mining legislation, Initiative I-137, passed in Montana in 1998).

In the past, c. 80% of Russia's gold production has been from alluvial sources.

The expansion of Russian gold production in the past five years has been helped by a number of factors. The laws governing the sale and export of gold production have been relaxed, with no export tax and companies now able to sell their gold production directly. In addition, the fall in the Rouble in 1998 meant that production costs in US$ terms fell sharply, more than offsetting the lower US$ gold price. This helped to generate increased investment in the gold sector by Russian banks, particularly in funding placer gold production. Finally, although the involvement of Western mining companies is still small, it has helped to boost gold production from hard rock sources in Russia – and this is the sector that will see the strongest long-term growth.

In the past, approximately 80% of Russia's gold production has been from alluvial sources, and only 20% from hard-rock mines. In contrast, approximately 80% of the current known reserves are in hard-rock deposits and only 20% in alluvial deposits.

There are a number of reasons for this discrepancy. The alluvial deposits were cheaper and easier to develop and this was a major factor in the communist era when capital was scarce. Considerable effort was put into exploring hard-rock gold deposits in the past 30 years or more, however, as this generated 'reserves' that boosted the overall resources of the USSR.

This dichotomy has now created some major opportunities for mining companies with access to capital to obtain licenses and develop the known hard-rock deposits – which is what is now happening in the Russian gold mining industry.

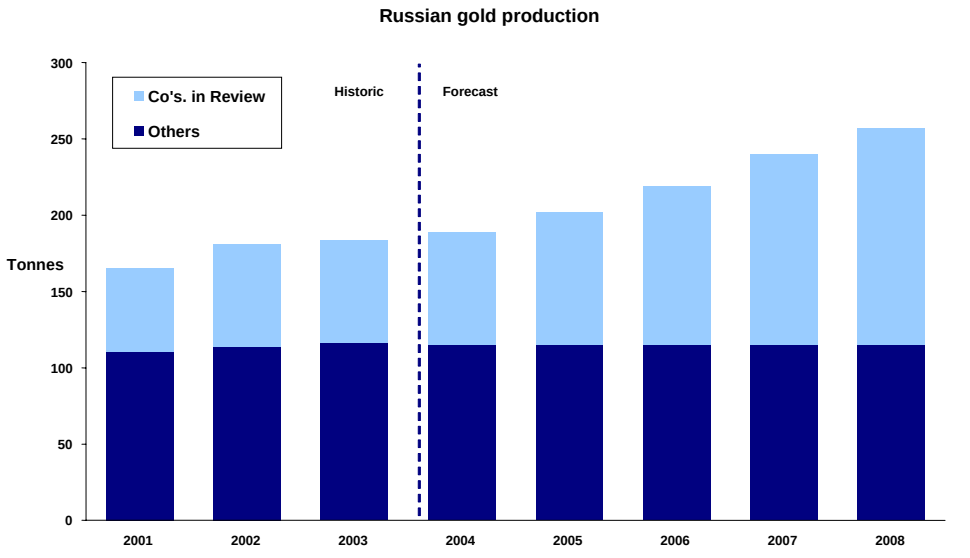
Looking ahead, we expect Russian gold production to continue to grow strongly. The operations of the eight Russian gold companies included in this review accounted for approximately 67t of gold production in 2003 (*not* including Oxus, whose operations are in Uzbekistan and Kyrgyzstan, nor Celtic's Suzdal and Zherek mines in Kazakhstan). This was marginally down from an estimated 68t in 2002, due to the fall in production at Kubaka (Kinross Gold) (from 12t in 2002 to 6t in 2003) offset by increases elsewhere, such as Mnogovershinnoe (Highland Gold) and Pokrovskiy (Peter Hambro Mining).

However, the expansion plans of these companies will see their gold production grow to an estimated 104t in 2006 and 142t in 2008. If we assume that the other Russian gold producers merely keep their production steady, at around 115t, this will push Russian gold production to almost 260t in 2008 – a rise of 40% from 2003. This forecast does not include any production from Sukhoi log, which is expected to be auctioned in late 2004. That could ultimately add another 30t per annum.

A strong growth profile makes Russia 'a must-have' for gold investors.

In any case, our forecast gold production level in 2008 would rank Russia alongside Australia and the USA – and possibly even ahead of them if their gold production continues to slide. This strong growth profile makes Russia 'a must-have' for gold investors.

Exhibit 3. Russian gold production, 2001 – 2008



Source: 3C estimates

Recent developments in Russian gold

In 2002 there were approximately 600 companies mining gold in Russia. Most of these were small 'artels' working on alluvial deposits, financed year-by-year by the Russian banks. However, over 40% of the total gold production was generated by the ten largest companies – which included four Western controlled companies. The top ten gold miners in Russia in 2002 are shown in the table below.

Exhibit 4. Top ten gold Russian miners in 2002

Russian company	Major / foreign shareholder	Major mine	Mine / ore type	Region	2002 '000oz	% of Russian total
Norilsk Nickel		Olimpiada	Open pit	Krasnoyarsk	807	14%
Omolon	Kinross Gold (98%)	Kubaka	High-grade veins	Magadan	399	7%
Lenzoloto	Norilsk Nickel (51%)		Placer deposits	Irkutsk	230	4%
Susumanzoloto	(PHM in partial JV)		Placer deposits	Magadan	185	3%
Highland Gold	Barrick Gold (17%)	Mnogovershinnoe	Open pit	Khabarovsk	178	3%
Buryatzoloto	High River Gold (51%)	Zun-Holba, Irokinda	U/g, veins	Buryatia	150	3%
Polymetal		Total of 12 mines	Hard rock, placer	Various	135	2%
Amur			Placer deposits	Khabarovsk	130	2%
Aldanzoloto		Kuranakh	Placer, hard rock	Yakutia	115	2%
Omsukchansk	Bema Gold (79%)	Julietta	U/g, veins	Magadan	109	2%
Total					**2,438**	**42%**

Source: Company data, 3C estimates

Norilsk Nickel is now by far the largest gold producer in Russia. The acquisitions of Lenzoloto and the Matrosov mine in 2003 give Norilsk control of some 1.3Moz per annum of gold production (of which just over 1.1Moz is attributable to Norilsk). This is approximately 22% of the total estimated Russian gold production in 2003.

In contrast, the Kubaka mine (owned by Kinross Gold) saw production halve in 2003 as the high-grade reserves were nearly exhausted and production came from stockpiled, lower-grade material.

A number of companies have growth plans that will see their total production grow to +0.5Moz per annum.

A number of companies have growth plans that will see their total production grow to +0.5Moz per annum, including Celtic Resources, Highland Gold and Peter Hambro. This, however, still leaves Norilsk well in the lead.

The entrance of Barrick Gold Corporation (*see below*) may be a signal that the major Western mining companies are ready to take the risk of looking at projects in Russia. If this is the case, we are likely to see an increase in corporate deals in the next couple of years as the major companies look to rapidly establish a significant operating base in Russia.

The corporate scene has certainly been active in Russia in the past couple of years in any case. The table below summarises the main deals in the past 18 months, which include both purchases of State owned assets and deals between existing mining companies.

Exhibit 5. Major corporate deals in Russian gold mining, 2002/04

Company / mine bought	Percent bought	Buyer	Date	Price US$'M	Total resources 'Moz	Price US$/oz	Total prod'n. '000oz	Price US$/oz
Polyus, Olimpiada mine	100%	Norilsk Nickel	Oct. 2002	226	24.9	$9	850	$266
Kupol	75%	Bema Gold	Dec. 2002	68	6.1	$15		
Tokur	100%	Peter Hambro	Apr. 2003	36	8.1	$4		
Nezhdaninskoye mine	50%	Celtic Resources	Jun. 2003	35	28.0	$3	500	$140
Matrosov	38%	Norilsk Nickel	Aug. 2003	34	8.0	$11		
Lenzoloto, placer mines	5.6%	Norilsk Nickel	Aug. 2003	3	9.7	$5	325	$148
Lenzoloto, placer mines	45%	Norilsk Nickel	Sep. 2003	153	9.7	$35	325	$1,046
Mayskoye	100%	Highland Gold	Sep. 2003	35	9.0	$4		
Highland Gold	7%	Barrick Gold	Jan. 2004	40	16.8	$34	240	$2,372
Total / weighted average				**630**	**120.2**	**$9**	**2,240**	**$356**

Source: Company announcements, 3C estimates

Of the nine deals listed above, four have involved Norilsk Nickel as the buyer. Norilsk has publicly stated its intention to move into the gold business and to generate 20% of its future revenues from gold. Its first step in this strategy was the purchase of Polyus, and the Olimpiada mine, which is Russia's largest gold producer. Building on this strong base Norilsk has also bought controlling interests in Lenzoloto, the third largest Russian gold producer, all from placer deposits; and in the Matrosov deposit that is not yet in production. Norilsk is expected to be a strong contender for the Sukhoi Log deposit when it comes up for auction later this year.

Norilsk is expected to be a strong contender for the Sukhoi Log deposit when it comes up for auction later this year.

The other deals have all involved Western companies buying Russian gold assets. Bema Gold bought the Kupol deposit for an estimated total of US$68M, though part of this price will only be determined when the feasibility study is complete and a development decision is taken. Peter Hambro bought the Tokur deposit, for just US$6M in cash and shares that were valued at US$24M in early 2003 (but are now worth approximately double that). Again, a final payment in shares (valued at US$6M) may be due once the feasibility study is complete.

Celtic Resources agreed to buy the 50% of Nezhdaninskoye that it did not already own from IG Alrosa, in an all-share deal that will see IG Alrosa owning some 23% of Celtic Resources. The price appears low in terms of dollars per ounce of resources / annual production, but this may to some extent be distorted by the complex nature of the transaction. IG Alrosa will give up 50% of Nezhdaninskoye, but will then receive 23% of the mine through its Celtic shares, plus 23% of all Celtic's other assets. So the deal is not really a straight sale of 50% of Nezhdaninskoye, but rather a swap of 27% (net) of Nezhdaninskoye for 23% of Celtic's other assets. This deal has yet to be finalised.

Highland Gold purchased the Mayskoye deposit in late 2003 for US$35M in cash. Barrick Gold Corporation now holds 17% of Highland Gold – the first 10% was purchased from Harmony Gold Mining (which was forced to sell due to problems with South African exchange regulations) and the next 7% was in new shares issued by Highland Gold for US$40M, partly to fund the acquisition of Mayskoye. Barrick and Highland Gold are now also discussing terms for a joint venture over Mayskoye, giving Barrick a more direct interest in the mine and its resources / production.

The entrance of Barrick on the Russian gold mining scene is important, as it is the first time that a *major* Western mining company has taken a stake in a Russian mining venture. It seems likely that Barrick will also be interested in bidding for the Sukhoi Log deposit later this year, probably in conjunction with Highland Gold. This could lead to a bidding contest between Barrick / Highland and Norilsk.

The prices paid in these deals, in terms of dollars per ounce of resources and per ounce of annual production, generally appear low compared to the same ratios for Western gold producers. Mid-size Western gold producers trade on average at around US$175 per ounce of resources and around US$3,000 per ounce of annual gold production. These are 10-20 times the average ratings applied on the deals tabled above – though in the case of undeveloped deposits such as Kupol, Tokur, Matrosov and Mayskoye the required capital expenditure to develop the mine should also be taken into consideration and this could increase the rating by 3-4 times.

The prices paid in these deals generally appear low compared to the same ratios for Western gold producers.

Comparison of Russian gold producers

We have drawn up a table showing the major statistics for seven Western companies involved in Russian / FSU gold mining. The table shows the share price and market capital, then adjusts this for cash / debt on the balance sheet plus capital expenditure required to develop the known mining projects. This gives a total 'Gross Capital' for each company.

We have then divided this 'Gross Capital' by the ounces of gold in resources and by the estimated long-term annual gold production rate to give comparative valuations per ounce. The results are shown in the table below.

Exhibit 6. Comparative statistics for Western companies mining gold in Russia
Based on resources in Russian C & P categories and/or to JORC standards.

Company	Price	Issued shares	Mkt. Cap.	Net cash / (debt)	Capex req'd.	Gross Cap.	Resource	Gross cap./oz	LT prod. rate	Gross cap./oz	LT cash costs
	Local		US$'M	US$'M	US$'M	US$'M	'000oz	US$/oz	'000oz	US$/oz	US$/oz
Bema Gold	$4.48	351	1,180	1	577	1,756	19,848	88	1,092	1,609	157
Celtic Resources	£ 4.58	50	413	9	124	527	30,045	18	638	826	105
Highland Gold	£ 2.68	120	579	58	216	736	16,783	44	565	1,302	150
High River Gold	$1.96	106	156	16	100	240	2,561	94	245	981	195
Oxus Gold	£ 0.52	195	183	22	61	222	29,258	8	258	861	124
Peter Hambro Mining	£ 5.10	58	533	-13	110	656	30,481	22	448	1,465	161
Trans-Siberian Gold	£ 1.25	29	65	25	151	190	3,211	59	272	699	164
Averages			***444***	***17***	***191***	***618***	***18,884***	***33***	***502***	***1,231***	***148***

Source: Company announcements / reports, 3C estimates

The results show that Western companies operating in Russia still trade at a substantial discount to their counterparts operating on other contents, including North and South America, Africa and Australia.

In terms of gross capital per ounce of resources, the table above gives an average value of just US$33/oz, about one fifth the rating for similar sized gold producers elsewhere. In terms of gross capital per ounce of potential production, the average value of US$1,231/oz is less than half that of similar producers elsewhere.

Western companies operating in Russia still trade at a substantial discount.

However, one of the problems with any comparison between Russian gold companies and Western gold companies is a matter of definition of 'resources'. The Russian system of defining and classifying resources and reserves is different to that in the West, as we point out in detail in an appendix later in this report.

The major difference is the inclusion of 'Prognostic' or 'P' category resources under the Russian system. These resources were intended to give a feel for the potential scale of deposit, but do not meet any of the requirements for inclusion as formal 'Mineral Resources' under Western definitions such as the JORC code.

Most of the Western companies operating in Russia have recognised this difference. Although they still use Russian resource categories for formal reporting to the Russian authorities, for purposes of mine planning and reporting to Western investors they use standard Western definitions for their resources and reserves. This makes their statistics comparable to any other Western listed gold producer.

As we describe in the later appendix, there is no direct comparison between Russian categories of resources / reserves and Western classifications. However, for a simple translation, Russian A and B category reserves are comparable to Western measured resources / proven reserves; Russian C1 category reserves are comparable to Western indicated resources / probable reserves; and Russian C2 category reserves are comparable to Western inferred resources. The Russian P1, P2 and P3 category reserves have no Western comparison and should be ignored.

There is no direct comparison between Russian categories of resources / reserves and Western classifications.

Applying this conversion gives the following, edited table of comparison.

Exhibit 7. Comparative statistics for Western companies mining gold in Russia Based on resources in Russian C categories and/or to JORC standards.

Company	Price	Issued shares	Mkt. Cap.	Net cash / (debt)	Capex req'd.	Gross Cap.	Resource	Gross cap./oz	LT prod. rate	Gross cap./oz	LT cash costs
	Local		US$'M	US$'M	US$'M	US$'M	'000oz	US$/oz	'000oz	US$/oz	US$/oz
Bema Gold	$4.48	351	1,180	1	577	1,756	19,848	88	1,092	1,609	157
Celtic Resources	£ 4.58	50	413	9	124	527	15,422	34	638	826	105
Highland Gold	£ 2.68	120	579	58	216	736	16,783	44	565	1,302	150
High River Gold	$1.96	106	156	16	100	240	2,561	94	245	981	195
Oxus Gold	£ 0.52	195	183	22	61	222	8,673	26	258	861	124
Peter Hambro Mining	£ 5.10	58	533	-13	110	656	4,011	164	448	1,465	161
Trans-Siberian Gold	£ 1.25	29	65	25	151	190	3,211	59	272	699	164
Averages			***444***	***17***	***191***	***618***	***10,073***	***61***	***502***	***1,231***	***148***

Source: Company announcements / reports, 3C estimates

The statistics and ratios for Bema Gold, Highland Gold, High River Gold and Trans-Siberian Gold are all unchanged as they all either report resources to Western standards or only quote Russian C1 and C2 category resources.

The resources for Celtic Resources, however, have approximately halved, from 30.0Moz to 15.4Moz. The main drop is in the resources at the Nezhdaninskoye project. This has 28Moz in Russian C and P category resources, but under JORC standards the mine has 13.9Moz in measured, indicated and inferred resources (as assessed by SRK in 2001/02). The Suzdal mine has Russian C1 and C2 resources that are similar to the estimated Western resources, and the resources at the Zherek mine are small. In the tables we have assumed that Celtic will complete the deal to buy the other 50% of Nezhdaninskoye, so the attributable resources are the same as the total for that mine.

The resources for Oxus Gold have fallen even more sharply, from 29.3Moz to 8.7Moz (both attributable). Oxus has 50% of the Amantaytau mine and 66.67% of the Jerooy mine. At both of these projects the company has in the past stated resources and reserves to Western (JORC) standards. These total some 16Moz of gold equivalent, of which almost 9Moz is attributable to Oxus Gold.

However, the company also recently announced 'Additional Uzbek resources" and has also stated 'Added exploration potential' at Amantaytau and Jerooy. These amount to approximately 50Moz of gold equivalent, but are all in the Russian P category. It appears that these 'additional resources' have been flagged to give investors some idea of the exploration potential – but they are far too uncertain to include in any proper comparison of the mining companies.

The resources for Peter Hambro Mining ('PHM') have also been cut significantly, from 30.5Moz to 4.0Moz (*attributable*). PHM reports all its resources to Russian

standards and includes both C and P categories. This leads to the following changes to bring the figures in line with Western standards, as far as possible (100% for each deposit):

Exhibit 8. Analysis of Peter Hambro Mining resources

Mine	C+P	C1+C2
Pokrovskiy mine	9.9Moz	2.2Moz
Pioneer deposit	9.4Moz	1.8Moz
Tokur deposit	8.1Moz	n/a
Omchak JV	0.25Moz	0.25Moz
Voroshilovskoye deposit	3.2Moz	n/a
Total	**30.8Moz**	**4.2Moz**

Source: GFMS, 3C estimates

It is possible that the Pokrovskiy mine, Pioneer deposit and Tokur deposit have major resources of gold. However, further work is required to be able to state these resources according to Western (or Russian C category) standards – and to show that they can be mined economically. At present, PHM has given no breakdown at all of the 8.1Moz of resources in the Tokur deposit, so no resources have been included in the table above.

The pure Russian gold plays range in size from Trans-Siberian Gold at US$65M to Highland Gold at approximately US$580M.

PHM is working towards being able to state its resources and reserves to Western (JORC) standards – to this end the company has installed Micromine software at the Pokrovskiy mine for exploration and mine modelling. An update of the resources is expected with the 2003 annual results.

Looking at the results for the adjusted table, the largest Russian gold miner in terms of market capital is Bema Gold. However, Bema has considerable interests outside Russia (the Refugio gold mine in Chile, the Petrex gold mines in South Africa, and the Cerro Casale copper / gold project in Chile). It may therefore be classed more as a Western gold miner than Russian. The pure Russian gold plays range in size from Trans-Siberian Gold at US$65M to Highland Gold at approximately US$580M.

All the Russian gold miners will require considerable levels of capital expenditure to fully develop their properties. In general, the levels of attributable capital spending are from US$100M to US$200M. This spending requirement boosts the ‘gross capital’, to a high of around US$675M for Highland Gold and Peter Hambro Mining and a low of around US$200M for Oxus Gold and Trans-Siberian Gold.

The average rating in terms of gross capital per annual ounce is just over US$1,200/oz - less than half the rating applied to similar mid-tier gold producers outside Russia.

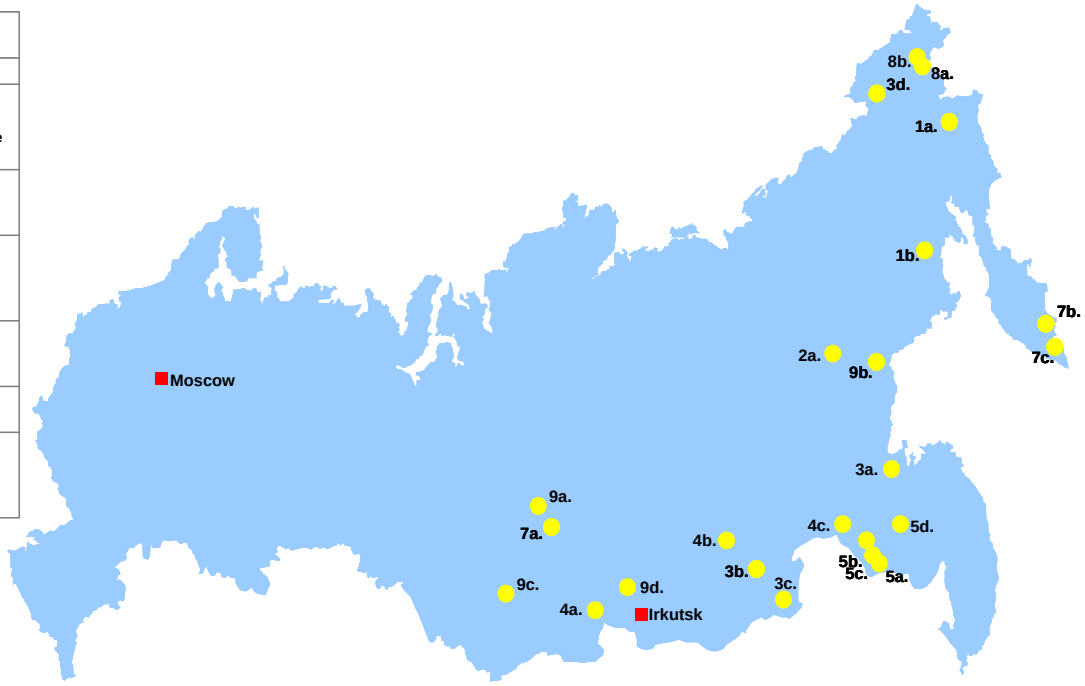
In terms of gross capital per ounce of resources, the average rating is US$61/oz when only the Russian C category or Western JORC resources are considered. This is still less than half the level for comparative Western gold companies operating outside Russia. The highest rating is Peter Hambro Mining, at US$164/oz, but this may be reduced when the company gives its resources to JORC standards and, hopefully, includes applicable resources for Tokur.

The Russian based gold miners are generally looking to achieve production rates of 250koz to 600koz per annum (Bema Gold will be +1Moz, but this is not all in Russia). This is a good production rate for a mid-tier gold producer. The average rating in terms of gross capital per annual ounce is just over

US$1,200/oz – again, less than half the rating applied to similar mid-tier gold producers outside Russia. Peter Hambro again has the highest rating (apart from Bema Gold), but there may be more upside potential for its production plans if the resources / reserves base can be proved up to Western standards. The lowest rated is Trans-Siberian Gold, but that is not too surprising as the company has yet to build its first mine and begin production and so carries a somewhat higher level of risk.

Exhibit 9. Key Russian gold deposits controlled by Western companies

Bema Gold	1a. Kupol Deposit 1b. Julietta Mine
Celtic Resources	2a. Nezhdaninskoye
Highland Gold	3a. MNV 3b. Darasun Mine 3c. Novoshirokinskoye 3d. Mayskoye
High River Gold / Buryatzoloto	4a. Zun-Holba Mine 4b. Irokinda Mine 4c. Berezitovoye
Peter Hambro Mininig	5a. Pokrovskiy Mine 5b. Pioneer Deposit 5c. Pokrivka Deposit 5d. Tokur
Trans-Siberian Gold	7a. Veduga 7b. Rodnikova 7c. Asacha
Kinross Gold	8a. Kubaka 8b. Birkachan
Norilsk Nickel	9a. Olimpiada 9b. Natalinskoye 9c. Titimukhta 9d. Lenzoloto



Source: 3C

Market performance of the companies

Russian gold mining companies had a very strong market performance in 2003, rising by an average of more than 200% as the table below shows.

Exhibit 10. Share price performance, January 2003 to March 2004

Company		02-Jan-03	02-Jan-04	Change in 2003	16-Mar-04	Change in 2004
Bema Gold	C$	1.98	4.78	141%	4.48	-6%
Celtic Resources	£	1.02	3.30	225%	4.58	39%
Highland Gold	£	2.09	2.85	36%	2.68	-6%
High River Gold	C$	2.00	1.95	-3%	1.96	1%
Kinross Gold	C$	11.45	10.45	-9%	8.77	-16%
Norilsk Nickel	US$	19.25	65.80	242%	71.70	9%
Oxus Gold	£	0.08	0.85	956%	0.52	-38%
Peter Hambro Mining	£	1.22	4.10	236%	5.10	24%
Trans-Siberian Gold	£	1.50	1.37	-9%	1.25	-8%
Average				**202%**		**0%**
Exc. Norilsk, TSG				***226%***		***-1%***
FTSE 100	£	4,028	4,510	12%	4,416	-2%
FTSE Mining	£	1,564	1,933	24%	1,989	3%
FTSE Gold Mining	US$	1,297	1,840	42%	1,593	-13%

Source: Market prices

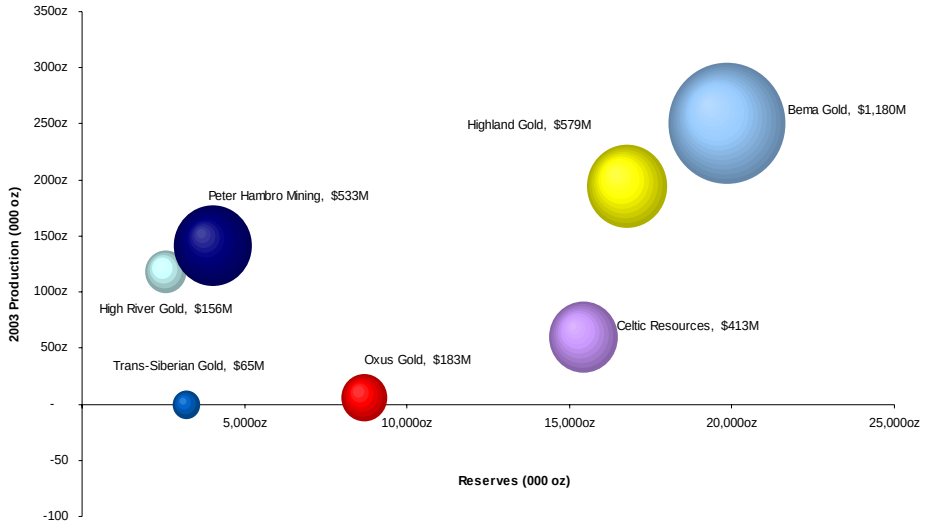
If we exclude Norilsk (which rose on the back of nickel more than its gold operations) and Trans-Siberian Gold (which only listed in November 2003), the average increase in 2003 was 226%. This was well above the 42% rise in the FTSE Gold Mining Index and the 24% rise in the FTSE UK Mining Index.

The performance so far in 2004 has been more lacklustre, with the share prices being flat on average (five are down and four are up). This is a reflection of the weakness in the gold price since its peak of US$426/oz in January, together with a general fall in the equity markets in mid-March following the Madrid bombs. The average performance is still in line with the FTSE 100 and FTSE UK Mining Indices, and has again beaten the FTSE Gold Mining Index.

As we showed in the previous sections, the Russian gold mining companies are generally rated at a fraction of their more international peer group. In addition, the companies that we have analysed in this report are planning to more than double their gold production over the next five years. These factors should allow the share prices in general to continue to perform well – though we doubt that 200% per annum will be achieved for each of the next five years!

Exhibit 11 compares Western listed Russian gold mining companies' market cap to 2003 production to 2003 resources. The table shows that, on average, the markets tend to pay a premium for gold companies that are in production phase versus those that are still in exploration. Bema Gold and Highland Gold were the largest producers in 2003 and consequently are the largest Western listed junior gold miners by market cap. Trans-Siberian Gold and Oxus are still in exploration phase which is reflected in a smaller market cap relative to its comparables.

Exhibit 11. Market cap vs. 2003 Production vs. 2003 Resources



Source: 3C

We have described each of the gold mining companies operating in Russia in more detail in the following pages.

Bema Gold

Company history

Bema Gold was formed from the amalgamation of three junior gold mining exploration companies in 1988. The company's first mine began production in Idaho in 1989.

In the same year Bema acquired the option to earn a 50% interest in the Refugio mine in Chile. Mine construction began in 1994, with Amax Gold as Bema's partner, and the first gold was poured in 1996. Mining was suspended in May 2001 due to the poor gold price – but is planned to restart in late 2004.

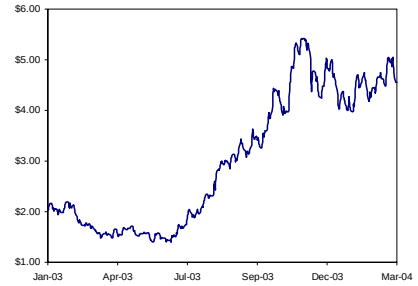
In 1995 Bema acquired 49% of the Cerro Casale deposit; a pre-feasibility study confirmed 19.5Moz of gold and 5Bn lbs of copper in 1997, at which stage Placer Dome became a partner in the venture. Placer Dome completed a full feasibility study in 2000 – but metal prices were too low for mine development at that time.

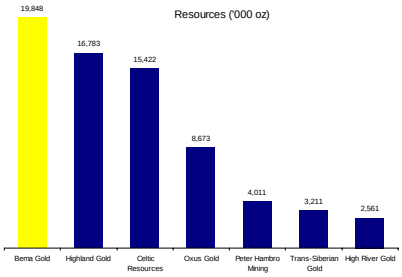
In 1998 Bema made its first move into Russia with the acquisition of Arian Resources, and hence 79% of the Julietta project. Production at Julietta began in late 2001.

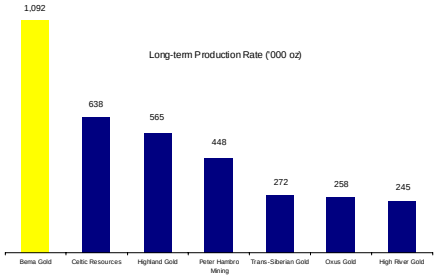
In 2002 Bema acquired the option to earn 75% in the Kupol project, also in Russia. Drilling completed in 2003 has given indicated / inferred resources of 6.1Moz of gold and 75Moz of silver.

In late 2002 Bema also announced the acquisition of 100% of Petrex Mines in South Africa, completed in early 2003. This deal more than doubled Bema's attributable gold production in 2003, to 226koz.

52-WK HI (12/01/03)	C$5.60
52-WK Lo (06/05/03)	C$1.39
Shares Issued	351M
Market Cap.	US$1,180M







The operations / projects

Julietta Mine (79% owned)

The Julietta mine is located in Far East Russia, in the Magadan region. The site is accessible by road all year round.

The deposit comprises a number of high-grade gold veins, averaging 22g/t gold on the current reserves / resources. The ore veins are located in a hill and are accessed through a horizontal adit and internal shafts. The operation mines just 400t of ore per day to produce +100koz of gold per annum in total (giving +80koz attributable to Bema).

Production began in September 2001 and the mine produced 109koz of gold in 2002 and 118koz in 2003 (both 100% of production). The total cash cost was US$148/oz in 2003.

At the end of 2002 proven / probable ore reserves totalled 406koz of gold, with a further 527koz of gold in indicated and inferred resources. Exploration in 2002 replaced all the ore mined in the year, and it appears the same has been done in 2003 (the revised ore reserve figures are not yet available). On this basis, the Julietta mine should have a life of at least another 8 years and could well be producing for another 10 years or more.

Petrex Mines (100% owned)

The Petrex operations are located on the Far East Rand of South Africa. The group was formed by the combination of sixteen different land holdings and was acquired by Bema in early 2003. Gold production has been ongoing at the properties for some years, but their amalgamation gives the opportunity to increase the overall production and to cut costs through optimisation of the mining / processing.

Ore is currently sourced from seven underground shafts and two open pits. During 2003 Bema expanded the mill to handle 6,000t of ore per day, or 190kt per month. The expansion was completed in August and the mill has since shown it can exceed this target rate.

The underground operations at Petrex are relatively low grade by South African standards, with the underground ore resources averaging 4.2g/t. However, the open pit resources average a respectable 2.8g/t. Gold production in 2003 totalled 132koz in the 10.5 months of Bema's ownership. With the mill expansion Bema is targeting gold production of 200koz per annum from 2004 onwards.

Total cash costs in 2003 were significantly higher than planned at US$394/oz, or some R2,900/oz. The higher US$ cost was mainly due to the weak dollar / strong Rand – Bema had based its budgeted costs on an exchange rate of R10/US$, but the actual average was R7.35/US$. Looking ahead, Bema has taken some protection against a continued strong Rand by buying Rand gold puts. In addition, the completion of the mill expansion and an exploration programme aimed at better defining open pit reserves should help to reduce the unit costs in 2004.

Proven / probable reserves at Petrex totalled 1,427koz underground and 175koz in open pits at the end of 2002; measured / indicated / inferred resources totalled 2,716koz underground and 713koz in open pits. These are expected to give a mine life of at least 10 years - and will likely give more.

Refugio Mine (50% owned)

Bema and Kinross have decided to reopen the Refugio mine.

The Refugio mine is located in Northern Chile and is owned equally by Bema Gold and Kinross Gold (which merged with Amax Gold in 1998). The mine began production in 1996 and produced approximately 150-180koz per annum from 1997 to 2000, using open pit mining and heap leaching to process the low-grade ore.

In early 2001 it was decided to put the operations on care-and-maintenance, due to the low gold price and the need for further capital expenditure. The two partners agreed, however, that the reopening of the mine would be considered when the gold price went over US$325/oz.

During 2003 a 56,000 metres drilling programme was carried out that massively increased the reserves and resources at Refugio. At the end of the year proven and probable ore reserves totalled 124Mt grading 0.86g/t for total contained gold of 3.43Moz. This is well over double the reserves when the mine closed (47Mt grading 0.93g/t for 1.41Moz of gold at end 2001). In addition, the total resources at the Verde and Pancho deposits have increased to 137Mt grading 0.79g/t for 3.5Moz of gold (vs. 53Mt grading 0.75g/t for 1.3Moz at end 2001).

On the back of these positive exploration results and the increased gold price, Bema and Kinross have decided to reopen the Refugio mine, with production planned to start by the end of 2004. The project will be expanded to give a mining rate of 40,000t per day from the Verde pits, and a new pit on the Pancho deposit will be brought into operation later at 35,000t per day. This mine plan will produce around 230-260koz of gold per annum, with a mine life of at least 10 years. Total cash costs are expected to average US$225/oz.

Capital expenditure to expand the operations, repair and replace critical items in the existing infrastructure, and increase the reliability of the operations is expected to total just over US$100M. Of this total, some US$30M will be for a new mining fleet, which will be financed through a capital lease. Another major item will be a 110km long power line, connected to the Chilean electricity grid, which will replace the previous diesel generators.

Kupol Deposit (75% owned)

The Kupol deposit is a high grade gold / silver deposit located in the far eastern Chukotka region of Russia. Bema Gold signed an agreement with the Chukotka government in late 2002 that gave Bema the right to earn a 75% interest in the Kupol project, with the Chukotka government retaining 25%. Under the terms of the agreement, to earn the full 75% Bema must pay the government US$30.5M in cash spread over two years (by end 2004); must spend US$10M in exploration over two years (in 2003 and 2004); must complete a Bankable Feasibility Study; must pay US$5 per ounce of gold based on 75% of the proven and probable ore reserves defined in the feasibility study; and finally, upon start of construction, must pay another US$5/oz of gold for 75% of the proven and probable reserves. In total, if we assume ore reserves of, say, 5Moz of gold (see discussion below) the total cash cost to Bema for its 75% interest in Kupol will be around US$80M (including the US$10M on exploration).

The Kupol deposit is a high-grade vein system, with a known length of 4km that remains open along strike and at depth.

The Kupol deposit is a high-grade vein system, with a known length of 4km that remains open along strike and at depth. Bema carried out an intensive drilling programme in 2003, using two Russian and two Canadian rigs. The results were published in January 2004 and showed total Indicated and Inferred Mineral Resources of 6.1Moz of gold and 75Moz of silver. The full results are tabulated below.

Exhibit 12. Kupol Mineral resources, as at January 2004

`	Tonnes '000t	Gold g/t	Silver g/t	Gold '000oz	Silver '000oz
Indicated Mineral Resource:					
Big Bend zone	1,257	29.6	308	1,196	12,400
Other zones	1,294	15.1	161	630	6,700
Total	2,551	22.3	232	1,826	19,100
Inferred Mineral Resource:					
Big Bend zone	2,629	22.4	337	1,895	28,500
Other zones	4,537	16.0	188	2,336	27,400
Total	7,166	18.4	243	4,231	55,900
Total Mineral Resource:					
Big Bend zone	3,886	24.7	327	3,091	40,900
Other zones	5,831	15.8	182	2,966	34,100
Total	**9,717**	**19.4**	**240**	**6,057**	**75,000**

Source: Bema Gold press release

In the press release Bema Gold says, "*Management believes that the ultimate target at Kupol is up to, or in excess of, 16M tonnes with similar gold and silver grades to those stated in the preliminary resource*." This would be 65% more tonnage than the preliminary figures above – and would imply total resources of some 10Moz of gold and 125Moz of silver.

"Management believes that the ultimate target at Kupol is up to, or in excess of, 16M tonnes with similar gold and silver grades to those stated in the preliminary resource."

A further drilling programme is planned for 2004 and we expect that this will lead to a feasibility study in 2005. On the basis of the results so far, and management's expectations, we would look for a mine at Kupol to produce around 600koz of gold per annum, plus some 6Moz of silver. Initial mining is likely to be by open pit, for 3-4 years, then underground for another 8-10 years. The capital cost of developing such an operation is likely to be around US$175-200M, but the operating costs would be low at less than US$100/oz of gold equivalent, and likely less than US$50/oz of gold if the silver revenues are deducted from the working costs. The payback period could therefore be as little as 18 months, and still less than two years even including the cost to Bema of its 75% interest in the project.

With a feasibility study completed in mid-late 2005 we would hope to see the mine begin production in mid-2007. However, the Chukotka region is remote, with little infrastructure. In addition, Bema will have to meet the Russian regulatory and permitting requirements before the mine is developed – which can take time.

Kupol is clearly a major project, set to become the flagship of Bema's operations and to generate more than 50% of the company's total attributable gold production from 2008 under our projections.

Nonetheless, Kupol is clearly a major project, set to become the flagship of Bema's operations and to generate more than 50% of the company's total attributable gold production from 2008 under our projections.

Cerro Casale (24% owned)

The Cerro Casale project is part of the Aldebaran property in Chile and is jointly owned by Placer Dome (51%), Arizona Star Resources (25%) and Bema Gold (24%). The project is a massive, low-grade copper / gold deposit with reserves of 1,035Mt grading 0.69g/t gold and 0.26% copper, giving 23Moz of gold and 6Bn lbs of copper.

Placer Dome completed a feasibility study in early 2000, based on long-term metal prices of US$350/oz gold and US$0.95/lb copper, which gave a positive IRR of more than 10%. The feasibility study looked for production of more than 1Moz of gold per annum for the first 10 years of operations at cash costs under US$100/oz. The capital costs would be around US$1.3Bn, implying a gross payback period of 5 – 6 years with gold at US$350/oz.

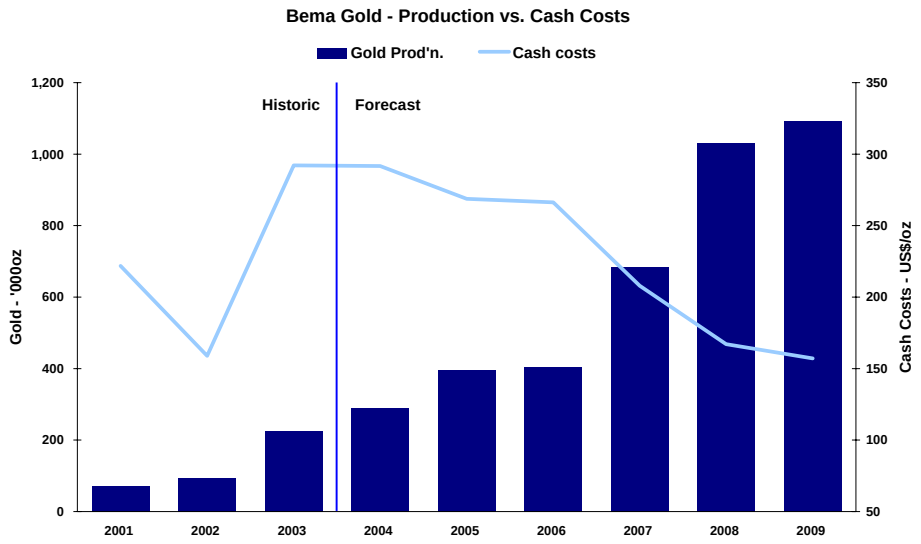
Due to the low metal prices in 2000 through to late 2003, the JV partners agreed not to go ahead with development of Cerro Casale at that time. However, with gold now at +US$400/oz and copper at +US$1.20/lb the partners are considering the development of the mine. The feasibility study is being revised, after which a decision on whether to develop the mine will be taken. Under the JV agreement, if a decision is made to develop the mine Placer Dome must arrange – and guarantee – up to US$1.3Bn of project financing in order to retain its 51% interest.

If a positive decision is taken to develop Cerro Casale, the mine could be in production in mid-2007 and would add a further 240koz of attributable gold production for Bema.

Production profile

Bema Gold's production profile is set to grow rapidly over the next five years, as shown in the chart below.

Exhibit 13. Bema Gold – gold production and cash costs



Source: 3C estimates

Russian gold production will play a major role in this growth, with Julietta and Kupol expected to contribute approximately 50% of Bema's total attributable gold production in 2008/09. These mines also have relatively low cash costs, at around US$100/oz for Kupol and US$170/oz for Julietta vs. estimates of US$225/oz for Refugio and US$330/oz for Petrex. Cerro Casale is also expected to be low cost, at around US$100/oz, if it is brought into production.

Financials

At the end of September 2003 (the latest available balance sheet), Bema Gold had net current assets of US$53.8M, including cash of US$65M. Long-term debt and deferred revenues totalled US$52.4M, virtually offsetting the net current assets.

Looking ahead, Bema has three major projects to finance over the next couple of years.

- Refugio will require a total of US$100M in capex, of which Bema's share will be US$50M (or US$35M net of capital leasing).
- Kupol will require around US$175-200M in development capital, of which Bema's share will be US$130-150M – but the company may also need to find financing for the Chukotka government to make up the balance. In addition, the cash cost of taking up the 75% interest will be around US$80M – of which some US$20M has been paid.

- Cerro Casale will cost around US$1.3Bn, of which Bema's share will be around US$312M. This may be done 'off balance sheet' however, as Placer Dome is responsible for arranging and guaranteeing all the finance for the project.

In total, Bema will need to find funding for between US$540M and US$620M. Even assuming bank debt for 75% of the total, this implies equity funding of US$135 – 155M.

In total, Bema will need to find funding for between US$540M and US$620M. Even assuming bank debt for 75% of the total, this implies equity funding of US$135 – 155M.

As a first step to this financing, Bema has raised US$70M through the issue of senior unsecured convertible notes. The notes will pay interest of 3.25%, mature in February 2011, and are convertible in the meantime into Bema shares at a price of US$4.664/share (37.5% above Bema Gold's average price of US$3.392 on the day of pricing). The proceeds of this issue will be used to fund Bema's share of the development of Refugio and to fund the continued exploration / development of Kupol.

Bema currently has 351M shares in issue, giving a total market capital of US$1,181M. Funding US$135 – 155M through additional equity implies total dilution of around 12%, an acceptable level given that attributable gold production is planned to increase approximately 4-5 times from 2003 to 2009.

Celtic Resources

Company history

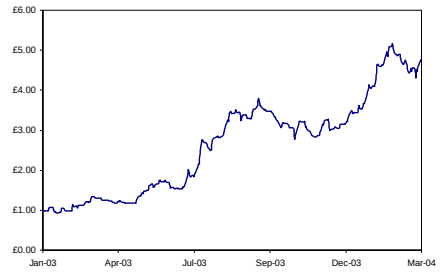
Celtic Resources was incorporated in 1994 and was initially listed on the Irish Stock Exchange before moving to AIM in October 2002. In 1997, Celtic acquired a 50% interest in, and management control of, the South Verkhoyansk Mining Company ('SVMC'), which in turn owns 100% of the Nezhdaninskoye gold mining property in Yakutia.

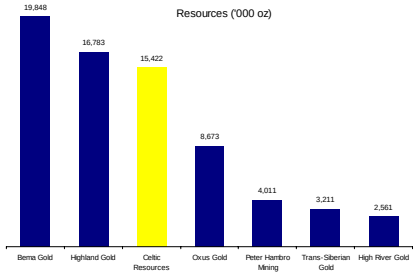
In June 2003 Celtic announced a deal with IG Alrosa ('IGA'), the holder of the other 50% of SVMC, whereby Celtic would take 100% control of SVMC and Nezhdaninskoye in exchange for issuing new Celtic shares to IGA, giving IGA a 23% stake in the enlarged company.

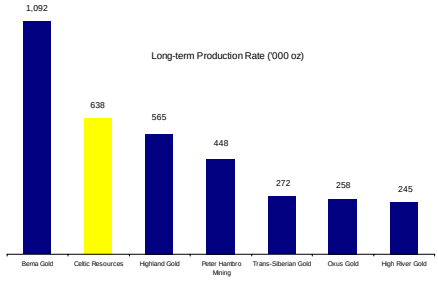
In July 2000, Celtic acquired an initial 15% interest in the Suzdal gold mine in Kazakhstan. This interest has been progressively increased to the current 100%. In November 2002 Celtic acquired a 75% interest in the Zherek gold mine in Kazakhstan, located some 23km from the Suzdal mine.

In December 2003 Celtic spun off its non-gold mining assets in a newly listed company, Eureka Mining plc, in which Celtic retains a 44% interest. Celtic also intends to spin off its oil interests into a new company, Anglo Asian Oil, which will list in early 2004.

52-WK HI (02/24/04)	£5.18
52-WK Lo (04/15/03)	£1.17
Issued	50M
Market Cap.	US$413M







The operations / projects

Nezhdaninskoye mine (currently 50% owned, going to 100%)

The Nezhdaninskoye gold deposit is located in the Republic of Sakha (Yakutia) in the far east of Russia. The deposit was initially discovered in 1747, but its actual location was lost for 200 years until its rediscovery in 1947.

The gold at Nezhdaninskoye is hosted in veins, either simple quartz veins or in more complex, shattered and faulted systems termed breccia zones. The quartz veins strike broadly east / west and dip steeply. The veins vary in thickness from under 1 metre to a maximum of some 5 metres, with strike lengths up to 1km. The grades in the quartz veins are high, usually over 10g/t and sometimes as much as 100g/t, made up of coarse gold particles. The breccia zones in contrast strike north / south and dip steeply to the west. The zones are thicker, from 3 metres to over 40 metres, and can be up to 13km long. The gold grade tends to be lower, ranging from 3 – 20g/t, with finer gold particles.

In the 1970s a mine and plant were built to produce gold / silver concentrates, which were then smelted in the Urals. The plant had a capacity of 250,000t of ore per annum. From 1975 to 1995 mining took place on the high-grade veins with an estimated total of 2.5Mt grading approximately 10g/t being extracted, to produce an estimated 320koz of gold (which implies a low recovery rate of less than 50%).

In 1996 Celtic Resources reached an agreement with Sakhazoloto, an open Russian JSC, to form a closed JSC named South Verkhoyansk Mining Company ('SVMC') that was granted a 25 years mining licence for Nezhdaninskoye. Celtic and Sakhazoloto each owned 50% of SVMC, but Celtic was responsible for funding 100% of the necessary capital expenditure.

Previous mining operations at Nezhdaninskoye meant that the mine was substantially developed.

The previous mining operations at Nezhdaninskoye meant that the mine was substantially developed, with 110km of underground development, a 250ktpa processing plant, a power-house and other buildings / infrastructure. Celtic has gradually refurbished the mine, plant and infrastructure and built a new cyanide leaching circuit to produce gold on site (rather than concentrates for smelting). During 2002, the first gold was poured from the upgraded operations in plant trials.

The Nezhdaninskoye deposit is large by any measure. Russian exploration reports from 1978 to 1993 estimated 16.4Moz of gold in categories B, C1 and C2, plus 12.5Moz of gold in the P (or prognostic) categories, giving a total of 28.9Moz of gold. In the prospectus for the 2002 AIM listing, SRK estimated that 0.9Moz of the B and C1 gold had been removed or sterilised by historic mining, leaving a total of 28.0Moz in all the Russian categories.

SRK also audited the historical Russian exploration results and calculated a Mineral Resource to Western (JORC) standards, together with an Ore Reserve for the initial mining plan. The results show that the Mineral Resource, including Inferred resources, is somewhat less than the Russian estimates of B, C1 and C2 resources, while the Ore Reserve is less than half the Russian B and C1 categories. The Ore Reserve calculated by SRK, however, refers only to a small part of the total deposit, leaving considerable scope for expansion as the mine is developed.

The results of the Russian estimates and SRK's work are summarised below.

Exhibit 14. Nezhdaninskoye Resources / Reserves, as at 2002.

Category	Tonnes 'Mt	Gold g/t	Gold 'Moz	Silver g/t	Silver 'Moz
Russian estimates					
'B'	4.9	5.7	0.9	24.8	3.9
'C1'	42.8	5.2	7.2	30.1	41.4
'C2'	49.0	5.3	8.3	12.3	19.4
Sub-total	*96.7*	*5.3*	*16.4*	*20.8*	*64.7*
'P'	75.0	5.2	12.5	18.0	43.4
Total	**171.7**	**5.2**	**28.9**	**19.6**	**108.1**
SRK Resources (to JORC)					
Measured	3.1	6.7	0.7		
Indicated	34.6	5.2	5.8		
Sub-total	*37.7*	*5.3*	*6.5*		
Inferred	40.2	5.7	7.4		
Total	**77.9**	**5.5**	**13.8**		
SRK Reserves (to JORC)					
Proven	1.2	7.4	0.3		
Probable	13.8	6.0	2.6		
Total	**15.0**	**6.1**	**2.9**		

Source: Celtic Resources plc AIM listing prospectus

Celtic Resources is following a staged development plan at Nezhdaninskoye.

- Stage 1 comprises developing the underground infrastructure and refurbishing the existing plant to enable mining and processing of 600ktpa of ore. This is planned to be complete in 2004 and will allow production of 130koz of gold per annum at a cash cost of around US$143/oz. The total capital cost is estimated at US$20M.
- Stage 2 involves the construction of a second processing plant and upgrading the underground infrastructure to give total capacity of 1,2Mtpa. This is planned to be completed in 2005 and will give annual production of

250koz of gold at cash costs of US$120/oz. The capital cost of this stage is estimated at US$35M.

- Stage 3 will cover further expansions to the mining infrastructure and the plant to take capacity to 2.6Mtpa. This is estimated to give annual production of 500koz of gold at cash costs of US$90/oz. This stage is planned to be completed by 2007 at a capital cost of US$40M.

Under the original ownership agreement, Celtic was responsible for funding 100% of the project development but only owned 50% of the property. However, this arrangement proved to be unworkable. As a result the two partners reached an agreement in 2003 whereby Celtic would take 100% ownership and control of the mine while its partners, ('IGA'), would be issued new shares in the enlarged Celtic.

Under this agreement, IGA will receive 5.12M Celtic shares upon closing; a further 3.94M Celtic shares six months after closing; and 7.58M preferred shares, which will convert into 3.79M ordinary Celtic shares in 2010. IGA will also arrange a loan to SVMC of US$20M to help fund the further mine development. The net result will be that IGA will own some 23% of Celtic Resources six months after closing of the deal.

If the deal is stalled much longer it may start to affect the development schedule for Stage 2 and 3.

A point to watch, however, is that this deal has still not been finalised, more than six months after the initial agreement. If the deal is stalled much longer it may start to affect the development schedule for Stage 2 and 3.

Suzdal gold mine (100% owned)

The Suzdal mine is located in northern Kazakhstan, some 75km from Semipalatinsk.

The deposit consists of four separate orebodies along a total strike length of 2.5km. The orebodies outcrop over strike lengths up to 1,000 metres and consist of steeply dipping zones of high-grade gold mineralisation within haloes of lower grade mineralisation. The ore has been oxidised down to a depth of approximately 70 metres, but the ore continues at depth, with the deepest drill intersection being at 701 metres below surface.

A mining licence for the project was initially granted to a company called Alel in 1995, with 22 years life. Alel operated the mine on and off for a few years to provide gold-rich quartz flux to smelters in Kazakhstan. The mine was then brought into continuous production in 1999 by Dabney Industries Corporation, which had financed the development in 1998/9. These operations were designed to treat the oxide cap of the orebodies, using open pit / heap leaching techniques. The operations have run since 1999 and produced 43koz of gold in 2001 and 37koz in 2002.

The operations have produced 43koz of gold in 2001 and 37koz in 2002.

Celtic Resources initially bought a 15% stake in the Suzdal mine in July 2000, and increased this to 100% over the following two years. Celtic is looking to develop the sulphide ore resources at Suzdal, to replace the oxide ore that is now near exhaustion.

In April 2003 the company announced that a feasibility study of mining the sulphide ores had been completed. Independent consultants, Geomine Solutions, estimated the total resources to a depth of 330 metres at 5.1Mt

grading 8.35g/t for total contained gold of 1.38Moz. Within this total resource, an open pit mineable reserve was estimated to a depth of 170 metres on just three of the orebodies. This showed total mineable reserves of 1.2Mt grading 13.2g/t for 504koz of gold.

Celtic Resources plans to develop a plant to treat the refractory sulphide ore using bacterial leaching followed by conventional carbon-in-leach recovery. Overall recovery rates are expected to be 80-85%. The mine production is planned to increase to a maximum of 500ktpa, which will give average production of some 85koz of gold per annum. Cash operating costs are estimated at US$130-190/oz. The capital cost of this development was estimated at US$21M in 2003.

The mining and heap leaching of oxide ore from Suzdal will continue until the end of 2004 at least, producing around 25koz of gold in both 2003 and 2004. In addition, gold loaded carbon from the Zherek mine (*see below*) will be processed at Suzdal.

Zherek mine (75% owned)

The Zherek mine is also located in Kazakhstan, some 28km from the Suzdal mine and plant. Celtic bought a 75% interest in the mine in November 2002 for US$4.5M, payable from the profits over the first seven years of production.

Ore resources at Zherek are estimated at 2Mt of oxide ore grading 2.8g/t for 175koz of contained gold, together with 2.8Mt of sulphide ore grading 5.5g/t for 500koz of contained gold – a grand total of 675koz. The sulphide ore resources remain open at depth and could be increased by further drilling.

Celtic intends to operate Zherek as a satellite of Suzdal.

The Zherek deposit had been worked intermittently in the past and had some limited infrastructure in place. Celtic bought the operation due to its nearness and similarity to the Suzdal deposit and intends to operate Zherek as a satellite of Suzdal.

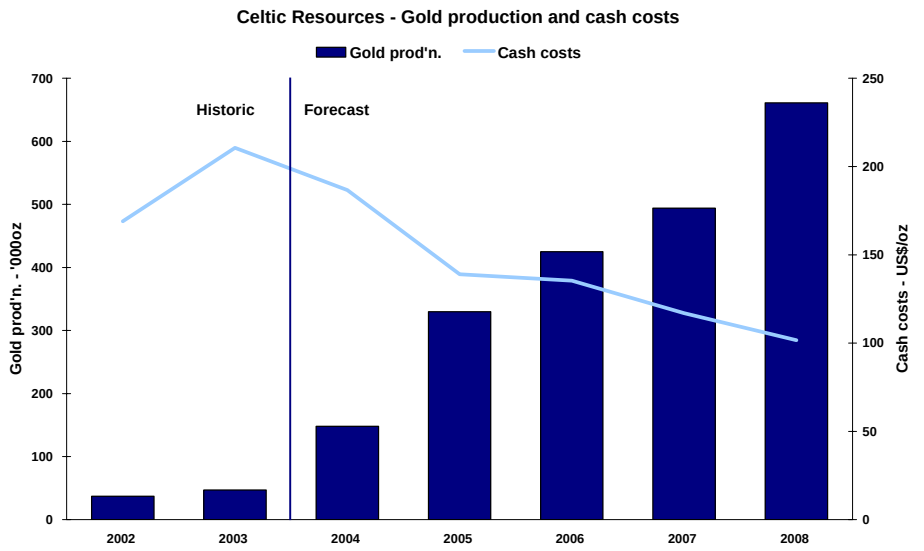
Initial production will again be from heap leaching of the oxide ores, to produce around 20koz of gold per annum. The gold-loaded carbon from the heap leaching will be transported to Suzdal for processing through the CIL plant and the production of gold doré. Mining and processing of the sulphide ores, using bacterial leaching for oxidation, is planned to begin in 2005 and the gold production rate is then planned to increase to approximately 50koz per annum at cash costs around US$190/oz.

Production profile

Celtic Resources' flagship operation will be the Nezhdaninskoye mine, which is planned to grow production from around 16koz in 2003 to some 500koz in 2008 – making up around 75% of the total from the company's three mines. Nonetheless, the growth at Suzdal and Zherek is also significant, from an estimated 44koz in 2003 to 180koz in 2008 through the development of the sulphide ores.

The chart below shows the overall attributable gold production profile, together with the average cash costs.

Exhibit 15. Celtic Resources attributable gold production / cash costs



Source: Celtic Resources / 3C estimates

Financials

At 30 June 2003 (the latest financial reports available) Celtic Resources had net current assets of US$1.35M, including US$12.6M in cash. Offsetting this, the company owed US$5.2M to the Republic of Kazakhstan.

Celtic Resources currently has approximately 35.1M shares in issue. The company has seen a steady stream of conversions of outstanding warrants and options in the past couple of months – not surprising with the share price rising to over £5/share and most of the warrants / options exercisable at less than £2/share. The exercise of all the outstanding warrants / options will raise approximately £7.4M or US$13.2M at the current exchange rate.

In addition, Celtic is committed to issuing new shares to IGA in payment for the other 50% of Nezhdaninskoye. In total, we estimate that the fully diluted share capital following the Nezhdaninskoye deal will be approximately 50M shares, as shown in the table below.

Exhibit 16. Celtic Resources share capital

	Issued 'M	Warrants = 'M ord.	Pref shares = 'M ord.	Fully diluted 'M
As at end '02	27.44	3.76	0.50	31.71
Placing Feb. '03	2.69	1.35		4.04
Bonuses, Nov. '03	1.14			1.14
Sub-total	31.28	5.11	0.50	36.89
For 50% of Nezh.				
On closing	5.12			5.12
6mths later	3.94			3.94
In 2010			3.79	3.79
Total	**40.34**	**5.11**	**4.29**	**49.74**
IG Alrosa stake:		*20%*		*26%*

Source: 3C estimates

IGA will have approximately 20% of the issued capital within six months of completion of the deal, assuming that all the warrants are exercised.

Celtic's capital expenditure plans include the following:

- Stage 1 at Nezhdaninskoye: now largely complete, may require a further US$5-10M.
- Stage 2 at Nezhdaninskoye: estimated to cost US$35M, to be spent in 2004/05.
- Stage 3 at Nezhdaninskoye: estimated to cost US$40M, to be spent in 2005/07.
- Suzdal sulphide operations: estimated to cost US$21M in 2004.
- Zherek sulphide operations: as a satellite deposit capital costs will be low, probably around US$10M.

In total, therefore, Celtic Resources plans to spend a further US$116M or so on its three mines. This spending will be spread over the next three years, and some may be funded from internal cash flow. Nonetheless, Celtic is likely to need around US$100M in debt / equity funding. If we assume that 70% of the total will be borrowed, then equity funding could amount to around US$35M.

Celtic's market capital is currently £161M or US$290M. Raising a further US$35M would therefore require dilution of around 10% - not a significant level in order to raise the gold production ten fold, from an estimated 60koz in 2003 to over 600koz by 2008.

Highland Gold Mining

Company history

Highland Gold Mining Limited ('HGML') is a relatively new company that has rapidly moved to be among the major gold producers in Russia. The company's key asset is the Mnogovershinnoe ('MNV') mine in the Khabarovsk region of eastern Russia.

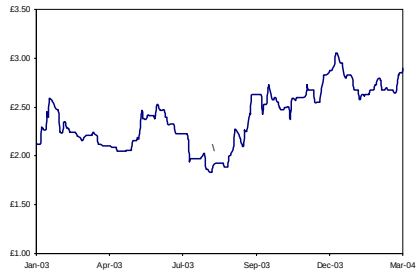
The MNV mine was resuscitated in 1998, with the injection of US$57M in new capital. Gold production restarted in 1999 and by 2003 the mine was the second largest gold producing mine in Russia. In 2002 Highland Gold Mining Limited was incorporated in Jersey and acquired the assets of the Russian company, ZAO MNV, HGML acquired two further Russian gold projects, Darasun and Novoshirokinskoye ('Novo') during 2002 and in December 2002 the company floated on AIM.

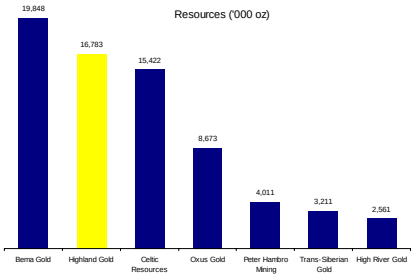
In September 2003, HGML acquired the Mayskoye gold deposit and in October 2003 Barrick Gold took a 10% stake in HGML (bought as part of the sale of Harmony Gold Mining's 32% stake).

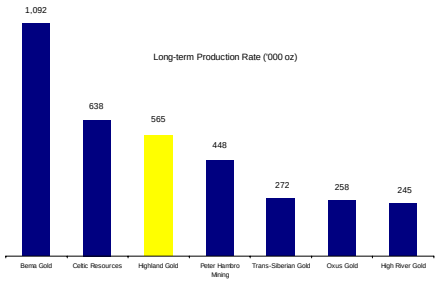
In January 2004 Barrick and HGML announced that Barrick is to buy a further 7% stake in HGML for US$40M and the two companies will discuss Barrick acquiring a joint venture interest in Mayskoye.

Currently, HGML is the largest AIM listed Russian pure play by market capitalisation.

52-WK HI (01/07/04)	£3.05
52-WK Lo (08/04/03)	£1.83
Shares Issued	120M
Market Cap.	US$579M







The operations / projects

HGML has one producing mine (MNV); one mine in development although due to begin production in May 2004 (Darasun); one mine about to begin development (Novo); and a fourth project that has just been acquired (Mayskoye).

MNV mine (100% owned)

Mnogovershinnoe is located in the Khabarovsk Territory in the far-east of Russia, some 650km north of the city of Khabarovsk. The MNV deposit was discovered in 1959 and detailed exploration began in 1963. Mine construction started in 1979, but the first gold production was only in 1991. The mine then operated until 1997, when it was closed due to poor technical and financial performance and a lack of funds for reconstruction and development. Following a change of ownership, the introduction of the current management team, and refinancing of US$57M, gold production recommenced in 1999.

Operations at MNV consist of both underground and open-pit mining of several high-grade gold deposits. The ore bodies at MNV are located within two zones, the Main Zone and the Intermediate Zone. The Main Zone is some 5.8km long, while the Intermediate Zone is some 6.2km long and is located 1.5km north-west of the Main Zone. The overall width of the two zones is some 2.5km. All the ore bodies within the zones strike north-east and dip to the north-west. Generally both ore body thickness and gold grade distribution is highly irregular.

The MNV ore bodies consist of low sulphide, quartz veins. Gold is distributed irregularly in the form of fine disseminated impregnations, small individual

pockets and thin veinlets. The majority (+/-95%) of the gold and silver (+/-85%) occurs in a free form amenable to standard cyanidation leaching. The gold is non-refractory, with extraction levels of 95% being achieved.

The mining rate has increased to 800kt in 2003 (475kt from underground and 325kt from the open pit), with a further 90kt treated from low-grade stockpiles. This boosted the gold production to 194koz in 2003. We now look for a long-term mining rate of around 900ktpa (approximately 600ktpa from underground and 300ktpa from the open pit) to generate gold production of 200koz per annum (by 2005).

Reserves at MNV at the end of 2002, in Russian B and C1 categories, totalled 8Mt grading 8.9g/t for 2.3Moz of gold. These are sufficient for almost 9 years at the proposed mining rate (*i.e*. to the end of 2011). However, there were also C2 resources of 1.7Mt grading 10.8g/t (undiluted) for 0.5Moz of gold and SRK stated that there is potential to add to the resources / reserves at both depth and from new targets. We expect the mine life in practice to be at least another 15 years. The total mining rate and gold production will likely fall, however, around 2010 when the open pit is exhausted.

Cash costs at MNV are around the average for Russian operations, at a range of US$140-150/oz, helped by the high grade of the ore.

Darasun mine (100% owned)

Darasun is a complex deposit that has produced almost 4Moz of gold over the past 100 years.

The Darasun project is situated in the Chita Region of Eastern Russia. Darasun is a complex deposit with more than 250 known veins that have produced almost 4Moz of gold over the past 100 years from a group of underground shafts now referred to as the United Mine. The mine was shut-in during 2000 due to a lack of financial resources for further development, but the underground infrastructure has been kept on a care-and-maintenance basis since then.

HGML has also acquired the Talatui and Teremky deposits, both of which are located in close proximity to the United Mine. It is intended to carry out mining operations at all three deposits, by open pit at Talatui and underground at both Teremky and Darasun.

The gold deposits at Darasun occur as thin quartz-sulphide veins and around 140 individual veins have been identified in the area. The high-grade veins are generally from 5-15cm thick, surrounded by a halo of lower-grade disseminated mineralisation. The overall thickness of the mineralised zones is 0.6-1.5 metres. Although thin, the ore zones are extensive both along strike (up to 2 km) and down dip (1,000-1,200 metres).

The gold is usually associated with the sulphides and tends to occur as small inclusions. A significant amount is free (up to 30%) and the ore is non-refractory, which should make processing relatively simple.

The company is using the existing crushers and some other plant infrastructure, but is building a new mill and CIP process plant with a capacity of 450ktpa. This will produce around 120koz of gold per annum.

The capital cost of the re-development of Darasun, opening Talatui and Teremky, and building the new plant is estimated at US$34M. Construction

began in early 2003 and mining has now commenced to build up a stock of ore. Gold production is planned to begin in May 2004.

The total resources at Darasun, Talatui and Teremky are 9.5Mt grading 10.3g/t for 3.1Moz of contained gold, all in the Russian B, C1 and C2 categories. These should be sufficient for around 20 years mining at the planned rate – and there is still further exploration potential at depth and along strike.

With the high grade ore and simple processing, cash costs at the Darasun project are expected to be in the US$130/oz range.

Novo (87.1% owned)

The Novoshirokinskoye project ('Novo') is also located in the Chita Region of Eastern Russia and is owned 87.1% by ZAO MNV and hence by HGML.

Novo is a polymetallic deposit that was discovered in 1951 and extensively explored between 1956 and 1962. A development plan for a base metal mine was formulated in 1969 and construction of the project began in 1970, but was suspended a few years later. A modified development plan was approved in 1988, but construction was again suspended in 1994, after the majority of the work was complete, due to the termination of centralised state funding. HGML was attracted to the deposit by the possibility of treating it as a gold mine with base metal credits.

HGML is targeting 75koz of annual 'gold equivalent' production, starting in 2005. We estimate the capital cost of re-opening the mine at around US$25M.

The Novo deposit occurs in a 20-300 metres thick fault zone. The mineralisation is found in the central portion of the zone with a strike length of up to 2.2km and to a maximum depth of 700 metres. A total of 17 orebodies have been delineated with the three largest holding over 90% of the resources.

The ore bodies are vein-like in nature, pinching and swelling with numerous splays. Towards the centre of the structure the 'veins' often merge together to form thicker zones of mineralisation. The average thickness of the main orebodies is around 3.5-6.5 metres. The ore is mainly lead / zinc sulphide mineralisation, with associated gold and silver in the host rocks. The mineralisation is fairly homogenous through the deposit, with little variation being displayed.

Resources at Novo are estimated at 9.4Mt grading 3.3g/t gold, 87g/t silver, 3.7% lead and 1.8% zinc. This gives total contained gold of just under 1.0Moz, with the other metals equivalent to an additional 0.8Moz of gold.

A lot of mining infrastructure already exists on the project including equipped haulages and shafts (with winders) and a partially completed mill and processing facility.

A feasibility study for the development of Novo is underway. HGML is targeting 75koz of annual 'gold equivalent' production, starting in 2005. We estimate the capital cost of re-opening the mine at around US$25M.

Mayskoye (100% owned)

The Mayskoye gold project is located in the Chukotka region, in the far northeast of Siberia inside the Arctic Circle. The deposit was first identified in 1972 and preliminary exploration commenced two years later. This was followed by an intensive programme of geological exploration and resource definition by

geophysical survey, drilling and underground development, which was completed in 1986.

The mineralisation at Mayskoye is somewhat complex, with the gold found in vein like structures that are in turn affected by faulting and folding. More than 80% of the gold is contained in sulphides, so that the ore is refractory. The ore grades vary from 3g/t to as much as 40g/t, with an average of just over 10g/t.

The Russian exploration defined C1 and C2 resources of 24Mt grading 11.4g/t for a total of 9.0Moz of gold. Within these resources HGML has calculated a mineable reserve of 10Mt grading 11.5g/t for 3.7Moz of contained gold.

Unlike HGML's first three mines, Mayskoye does not have the benefit of any past mining development – although some underground workings exist from the exploration phase and there is some surface infrastructure. This implies that the capital cost of the mine development will be higher than has been the case for the MNV, Darasun and Novo mines.

The development plans and costs for Mayskoye will need to be defined in more detail through a full feasibility study. At present, our 'ball park' estimate for the total capital cost is US$120m, though HGML believes it can bring the deposit into initial production at a cost of around US$90m. This is made possible by the fact that mining in the first three years will be mainly by open pit, which will give gold production while the underground operations (that will extract the majority of the ore over the mine's life and will come on-line about one year after the open pit begins operation) are still being developed.

The current mine plans look for annual production of 550kt that will produce around 180koz of gold. The reserves already defined will give a mine life of around 18 years. There is clearly room to extend the mine life or increase the production rate by bringing more of the resources into play.

The current mine plans look for annual production of 550kt that will produce around 180koz of gold.

The ore at Mayskoye is refractory and will need to be processed in two stages. The first stage will be into a gravity flotation concentrate, which will then be treated by bacterial leaching (bioxidation) to recover the gold. Previous metallurgical testing has shown overall gold recovery rates using the bioxidation method of 86-90%. The full metallurgical process route will need to be decided upon and the recovery rates validated in the feasibility study (which will likely require considerable levels of metallurgical testing).

The cash operating costs are uncertain at this point in time, however, the relatively high reserve grade of 11.5g/t will help to offset the remoteness of the mine. HGML has stated that it expects the total cash costs at Mayskoye to be in the region of US$160-170/oz.

The full feasibility study is expected by the end of 2004. Construction will then begin in spring 2005 with the first gold production expected in mid-2006. This is a tight schedule for the development of what is a very remote mining operation – but with Barrick also supplying technical assistance and funding, it should be possible.

Resources and reserves

The acquisition of Mayskoye in late 2003 doubled HGML's gold resources and added one-third to the reserves, as shown in the table below.

Exhibit 17. Highland Gold Mining – gold resources and reserves

Deposit	Resources (B, C1 & C2)			Reserves (B & C1 only)		
	Tonnes '000t	Grade g/t	Gold 'koz	Tonnes '000t	Grade g/t	Gold 'koz
MNV (100%)	9,921	9.7	3,102	8,000	8.9	2,292
Darasun (100%)	9,451	10.3	3,120	3,220	10.3	1,070
Novo. (87.1%)	8,152	6.1	1,590	4,807	5.9	904
Sub-total	**27,524**	**8.8**	**7,812**	**16,027**	**8.3**	**4,266**
Mayskoye (100%)	24,443	11.4	8,971	2,949	15.1	1,432
Total	**51,967**	**10.0**	**16,783**	**18,976**	**9.3**	**5,698**

Note: Novoshirokinskoye resources / reserves are gold equivalent ounces.

Source: Highland Gold Mining

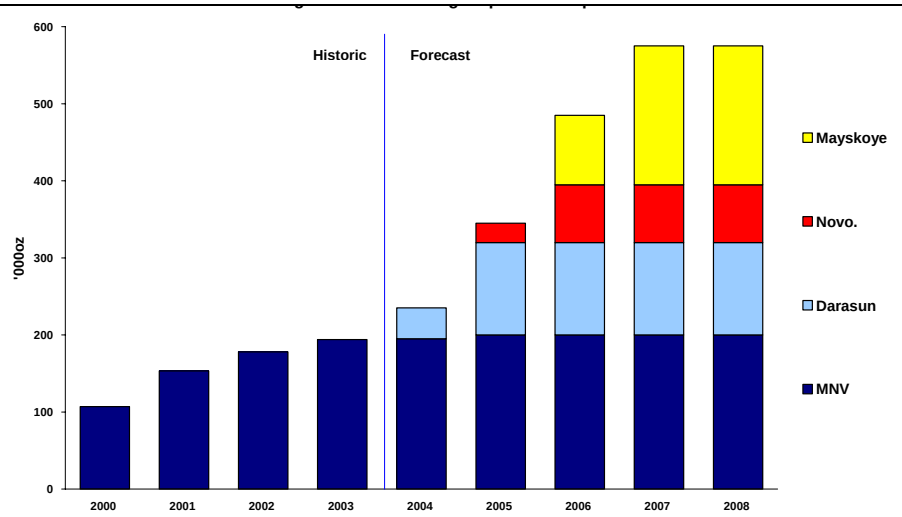
Although HGML's resources and reserves are based on Russian categories, only the B, C1 and C2 categories are taken into consideration. As we have shown elsewhere in this report, these are approximately equivalent to (respectively) measured, indicated and inferred resources and as such are comparable with the JORC standard resources and reserves quoted by most of the other Western companies operating in Russia.

HGML has seen strong growth in gold production from MNV since 1999.

Production profile

HGML has seen strong growth in gold production from MNV since 1999 and the addition of Darasun, Novo and Mayskoye will see further strong growth in the future. We estimate that HGML's gold (equivalent) production will grow from 194koz in 2003 to 575koz in 2007, as shown in the chart below.

Exhibit 18. Highland Gold Mining – Total gold production



Source: Highland Gold Mining, 3C estimates

Financials

HGML reported a profit for 1H 2003 of US$8.5M and with the stronger gold price in the second half of the year the full year should see profits of around US$18M.

The financial problems were eased by the appearance of Barrick Gold.

The balance sheet at the end of June 2003 (the latest available) showed net current assets of US$27.2M, including US$7.0M in cash, offset by long-term debt of US$9.1M. Since then, HGML has acquired the Mayskoye deposit at a total cost of US$34.9M, of which US$11.9M was payable on completion followed by US$11.5M on each of the first and second anniversaries of completion. The company has also been spending capital on the development of Darasun.

The cost of the corporate developments were clearly putting a strain on HGML's balance sheet – particularly as we expect the company to spend around US$180M in total on the development of Darasun, Novo and Mayskoye by 2006.

However, the financial problems were eased by the appearance of Barrick Gold. Barrick first took an interest in HGML in October 2003 when it bought 10% of the company from Harmony Gold Mining, which in turn was selling its entire 31.7% stake due to problems with the South African exchange control regulations.

At that time, the intention was for Barrick to carry out due diligence on HGML as a whole, and Mayskoye in particular, and to then subscribe for a further 29.6M new shares at £2.35/share, raising £70M or some US$116M (at the exchange rate of US$1.67/£) for HGML.

In January 2004, after completing its due diligence successfully, Barrick subscribed for 9.3M new shares at £2.35/share, raising US$40M for HGML and taking its shareholding in the company to 17%.

Instead of the higher indirect ownership of Russian projects through HGML, Barrick now wants more direct interests in operations. HGML and Barrick are therefore in discussions over Mayskoye and, in any event, Barrick will have a right of first refusal if HGML looks to do a deal with any other company.

In addition, HGML and Barrick will enter a four-year strategic partnership, with a one-year rolling contract thereafter, to develop opportunities in the Russian gold sector. This will include an agreement on how HGML and Barrick will co-operate in Russia, including the right but not the obligation, on an exclusive basis, for Barrick to participate in up to 50% of any acquisition made by HGML in Russia and similar rights for HGML for any acquisition made by Barrick in certain regions of Russia. The two companies will also look at an exploration joint venture.

This revised deal appears to give benefits to both companies. For HGML the share issue raises cash to strengthen the balance sheet. Going forward, the presence of Barrick will give added strength to HGML in any future acquisitions (*e.g*. the auction for Sukhoi Log later this year). The presence of Barrick as a stable partner and shareholder also gives a 'Seal of Approval' to HGML in particular and to Russian gold mining in general.

Barrick wants direct interests in large, low cost mines – which will be the case with Mayskoye. The partnership with HGML gives Barrick a rapid entry into Russia, which it presumably sees as the 'last frontier' in gold mining. Barrick produced 5.5Moz of gold in 2003, but targets production of 4.9-5.0Moz in 2004. The company clearly needs to find and develop new projects to maintain its resources base and its production level. With +/-5Moz per annum production, Barrick is not looking for small mines, but rather green field projects with the potential to generate +0.5Moz per annum.

From HGML's perspective, having an active partner should have material long-term, mutually beneficial, advantages.

Overall, from HGML's perspective, having an active partner rather than simply a major shareholder should have material long-term, mutually beneficial, advantages.

High River Gold

Company history

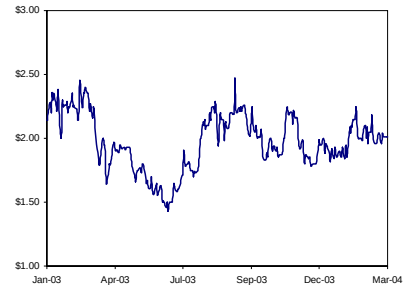
High River Gold ('HRG') is a TSE listed Canadian Company with four major assets on three Continents. It has grown to its current position since restructuring in 1992. The first step in the restructuring was the acquisition of 50% of the New Britannia Mine in Canada, in joint venture with TVX Gold (now Kinross Gold). The mine began production in 1995 and formed the backbone of HRG, contributing around two-thirds of attributable gold production from 1996 to 2001.

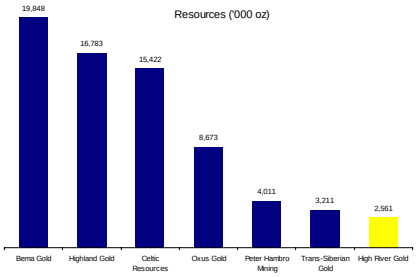
HRG acquired a 23% interest in the Russian gold producer Buryatzoloto in 1995/6. This initial stake was increased to 55% (51% on a fully diluted basis) in late 2001 / early 2002. Buryatzoloto has increased production in the past few years and is now HRG's main asset.

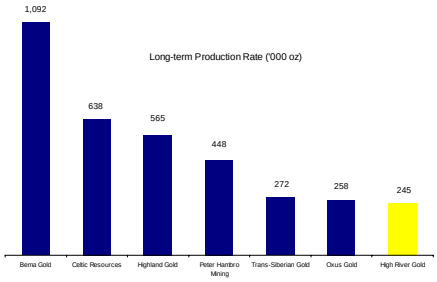
In December 2002, HRG acquired 100% of the Berezitovoye gold project in Southern Siberia. This acquisition was part of a new "Focus on Russia" strategy. A feasibility study is underway to develop Berezitovoye as a 50:50 JV between HRG and Buryatzoloto.

The company owns 80% of the Taparko gold project in Burkina Faso. This was on hold for some time waiting for an improved gold price, but a decision to go ahead was made in October 2003.

52-WK HI (09/09/03)	C$2.49
52-WK Lo (06/10/03)	C$1.40
Shares Issued	106M
Market Cap.	US$156M







The operations / projects

New Britannia Mine (50% owned)

New Britannia mine is located in Manitoba, Canada and is owned 50:50 by High River Gold and Kinross Gold Corporation (which took over the original partner, TVX Gold). Kinross is the mine operator, but HRG shares the management of the mine.

New Britannia is an underground operation and was initially worked from 1949 to 1958, then re-opened in 1995. The mine has produced an average of 100koz of gold per annum from 1996 to 2002.

A 3,000 feet deep shaft accesses the current mining operations. In 2003 gold production fell to 70koz as ore production was reduced due to thinning and flattening of the orebody in the mining area. This problem was compounded by lower ore grade (partly due to more dilution) and a stronger Canadian dollar. Drilling has shown that the orebody continues to at least 4,800 feet deep, but with a reduced strike length so that it is not economic to deepen the shaft.

The joint venture partners are now re-evaluating the mine and its future. At the moment it seems likely that mining will continue to at least the end of 2004, but unless exploration finds new ore reserves (which is possible) the mine will close down. We have assumed that the mine will have some limited production into 2005, but will then close. New Britannia had project debt of C$29M at the end of September 2003, but this is non-recourse to HRG.

Buryatzoloto (55% owned)

Buryatzoloto owns 100% of two underground gold mines, namely Zun-Holba and Irokinda, located in the Republic of Buryatia in southeast Siberia, and also has some small-scale placer mining. The two underground mines are well established, but have been upgraded and expanded since the mid-1990s.

HRG first bought a stake in Buryatzoloto in 1995, at the same time as the EBRD, when the Russian company was raising equity funding for mine expansion. Since then production from the two mines has grown from 54koz in 1995 to 150koz in 2002 and in 2003. In 2002 (the latest breakdown available) Zun-Holba produced 68.6koz of gold, Irokinda 81.4koz and the placer mining just 3.4koz.

Zun-Holba mine is sinking two internal shafts to access deeper sections of the orebody, which should be operational in 2005. The reserves at the end of 2002 were sufficient for around 6 years operations, but we expect that these will be added to with further exploration from the new shafts. With the operations going deeper, Zun-Holba has changed to cut-and-fill mining that has increased operating costs. The mine was linked to the local power grid in late 2002 through an 86km long power line. This access to non-diesel generated power will help to reduce the costs.

Irokinda mine is a vein operation and as such has limited defined reserves / resources. At the end of 2002 the C1 and C2 resources were sufficient for just 2-3 years of operations. However, the mine generally finds as much new ore as it mines each year through exploration. A new shaft is being sunk on this mine, too, that will give access to additional potential ore. We therefore expect Irokinda to continue mining for several more years.

Buryatzoloto has become the major source of attributable gold production for HRG.

Buryatzoloto has become the major source of attributable gold production for HRG, as shown in the chart below. Buryatzoloto is profitable, with total cash costs in 2003 of US$195/oz, up from US$164/oz in 2002 on the back of the changed mining method at Zun-Holba and the stronger Rouble.

In December 2003, there was market speculation that Buryatzoloto was planning to do a rights issue.

Berezitovoye project (100% owned at present, will be 77% net)

The Berezitovoye gold project is located in the Amur region of Siberia, close to the trans-Siberian railway. HRG bought 100% of the project for US$8.3M (in cash and shares) in December 2002, but will sell 50% to Buryatzoloto at cost so that the project can be developed as a joint venture between the two companies. Since HRG owns 55% of Buryatzoloto, its net share in Berezitovoye will be 77%.

The Berezitovoye project was explored between 1974 and 1984, which resulted in Russian resources of 14Mt of ore grading 3.05g/t gold for a total of 1.38Moz in the B and C1 categories. In 2003 Roscoe Postle Associates audited the Russian results and a new resource was calculated to Western (Canadian Institute of Mining and Metallurgy) standards. The results were similar to the Russian resources, with 14.0Mt grading 2.84g/t for 1.28Moz of contained gold in Indicated Resources.

The deposit is in a valley and is amenable to open pit mining. A feasibility study is underway and mining is expected to begin in 2005. The metallurgy of the ore will allow around 28% gold recovery by gravity, with normal cyanidation taking the overall recovery to 90-92%. Gold production is expected to be at least 100koz per annum over a life of 10 years or more. With simple mining and processing we expect the total cash costs to be around US$200/oz or less.

Taparko project (80% owned)

A pre-feasibility study in 2001 concluded that the Taparko project was not economic at the low gold price then prevailing. However, HRG considered that the project could be viable with more reserves and / or a higher gold price. To that end, the company came to an agreement with Axmin, which owns the Bouroum project some 50km from Taparko, to work the two properties in a joint venture. Together with a higher gold price this gave a positive feasibility study result in 2003.

The Taparko and Bouroum deposits will both be worked as open pit mines, feeding one mill and extraction plant at Taparko. The mill will process over 1Mt per annum of ore and production is estimated at 680koz of gold over a 7 1/2 year period, with production of around 100koz per annum in the first few years.

Taparko has indicated resources of 9.1Mt grading 2.25g/t for 656koz of contained gold. The mine plan in the feasibility study calls for mining 6.8Mt of ore grading 2.8g/t, to give 605koz of gold. In addition, a further 0.9Mt grading 4.0g/t will be mined at Bouroum in the first three years, to give another 110koz of gold. There is potential to add to these reserves from satellite deposits on both properties.

HRG is targeting production at Taparko in late 2005, though we have conservatively assumed start-up in 2006. With 80% ownership of Taparko, and a share of the Bouroum production, the project will generate over 70koz per annum of attributable gold for HRG in the first few years, at cash costs estimated at under US$200/oz.

Production profile

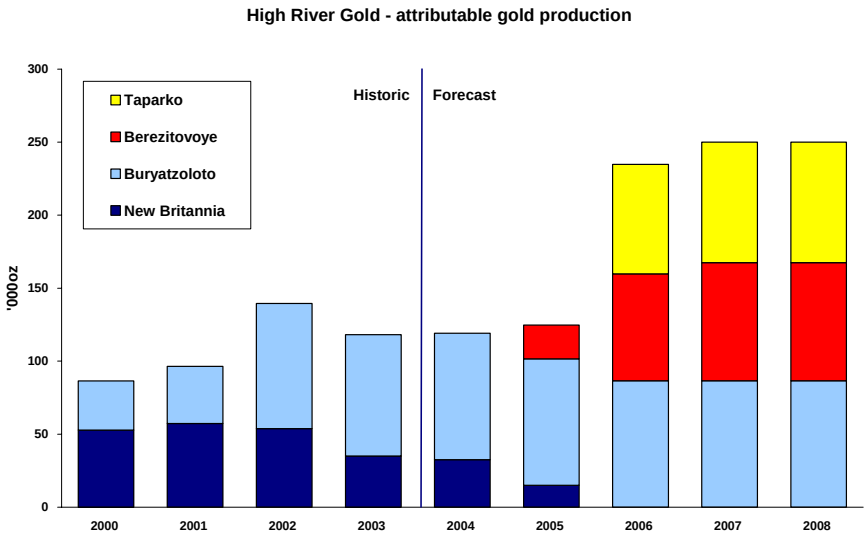
Russian operations will be the major sources of HRG's gold production.

High River Gold has approximately 2.8Moz of attributable gold in reserves and resources. This is a mixture of Russian C1 and C2 category resources at Zun-Holba and Irokinda (total 0.5Moz) and resources / reserves to Western standards at the other mines, including 77% of Berezitovoye (rather than the current 100%).

HRG's attributable gold production was largely from the New Britannia mine until 2002, when the lower production rate at New Britannia and higher ownership of Buryatzoloto saw the latter take the lead. Looking ahead, with New Britannia likely to close the Russian operations of Buryatzoloto and Berezitovoye will be the major sources of HRG's gold production. Taparko will then add another source of gold in 2006.

The historic and forecast attributable gold production is shown graphically below. Overall, we look for attributable gold production to grow from 118koz in 2003 to almost 250koz in 2007/08.

Exhibit 19. High River Gold – attributable gold production



Source: High River reports, 3C estimates

Financials

High River Gold has 106M shares outstanding, giving a market capital of C$208M or US$156M. At 30 September 2003 (the latest available accounts) High River Gold's balance sheet showed net current assets of C$31.3M, including C$23.1M in cash. This was offset by long-term debt of C$45.8M.

However, these are consolidated accounts and many of the current asset items are in Buryatzoloto, while all the long-term debt is in Buryatzoloto (C$18.3M) and New Britannia (C$27.5M) and is non-recourse to HRG itself. Overall, HRG had approximately C$21M (or US$16M) in cash available in its own accounts.

The major capital cost items in the next couple of years will be the development of new mines at Taparko and Berezitovoye.

The major capital cost items in the next couple of years will be the development of new mines at Taparko and Berezitovoye.

The feasibility study for Taparko estimates capital costs of US$47M. HRG has 80% of Taparko, but the government of Burkina Faso holds the other 20% of which 15% is free-carried. HRG will therefore be required to fund 95% of the capital costs at Taparko or some US$45M. We expect that around two-thirds of the cost (at least) will be debt funded, leaving an equity requirement of some US$15M from HRG.

The feasibility study for Berezitovoye will be completed shortly. HRG has so far not announced any expected capital cost for the project, but we estimate a total of around US$60-70M for a mine and plant to treat 1.2Mt of ore per annum. Berezitovoye will be a 50:50 joint venture with Buryatzoloto and HRG's direct share of the capex will therefore be US$30-35M. Again, a large proportion of the capital is likely to be debt funded, possibly through the EBRD that has lent money for project developments before. HRG may need to fund around US$10M in direct equity for the development of Berezitovoye.

HRG has around US$16M in cash, so with US$25M in equity funding required for its two major projects, it is possible that the company will be coming to the market in the next few months to raise further funds. With market capital of

US$156M the dilution should be less than 10%, an acceptable level since gold production will approximately double.

HRG has not performed as well as the rest of the Russian gold market in 2003, with the price down 3% against an average rise of 200%. One factor that may count against HRG is its 55% ownership of Buryatzoloto. Investors would prefer to see 100% ownership of the Russian assets by the Western company, with any Russian interests being in the form of shareholdings in the Western listed company and technical / skills input on the ground.

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Kinross Gold

Company history

Kinross Gold has grown over the past 10 years from a junior, Canadian gold producer to the seventh largest gold producer in the world, with international operations. The company's gold production has grown from under 100koz in 1993 to an estimated 1,700koz in 2003.

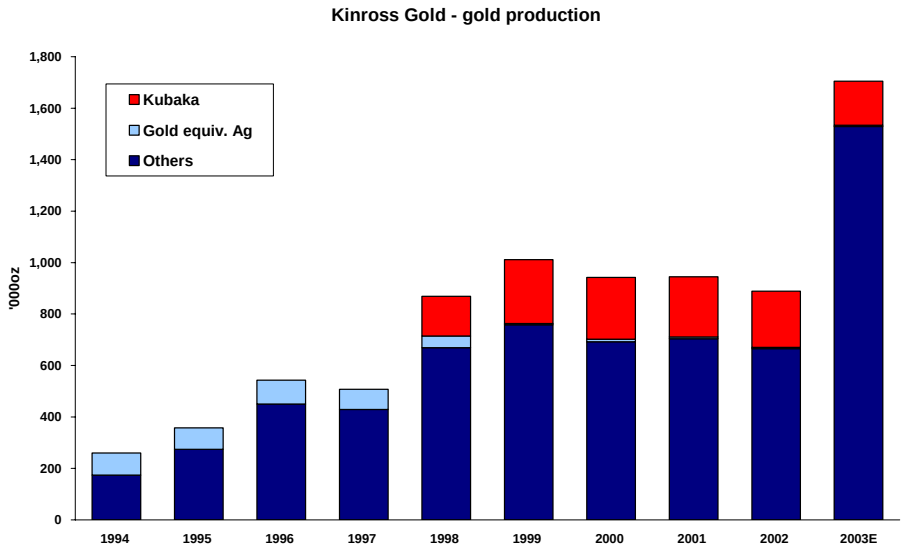
This growth was largely on the back of mergers and acquisitions, though new mines have also been developed.

- In 1998 Kinross Gold merged with Amax Gold, doubling its attributable gold production from 0.5Moz in 1997 to over 1Moz in 1999.
- In early 2003, Kinross Gold merged with Echo Bay Mines and TVX Gold, and also acquired Newmont Mining's 49.9% interest in the TVX Newmont Americas joint venture. This took the company's attributable gold production to an estimated 1.7Moz in 2003.

The growth in Kinross's gold production is shown graphically in the chart below. The importance in the past few years of Kinross's sole Russian operation, the Kubaka mine, is clear; from 1999 to 2002 the mine accounted for some 25% of Kinross Gold's total gold production.

From 1999 to 2002 the Kubaka mine accounted for some 25% of Kinross Gold's total gold production.

Exhibit 20. Kinross Gold – gold / silver production, 1994-2003



Source: Kinross Gold annual reports, 3C estimate for 2003

Kinross Gold in Russia

Kubaka Mine

The Kubaka gold mine has been one of the great success stories of Western companies' involvement in Russia.

The Kubaka mine is located in the far east of Russia, in Magadan oblast, some 950km north of the city of Magadan. Access to the mine is by air and by winter road. The deposit was discovered in 1979 and explored during the early-mid

1980s. The gold mineralisation at Kubaka occurs in high-grade (20g/t) quartz veins; four major veins have been defined, which are divided into 15 sub-veins.

In 1987 the state owned Dukat Mining Company GOK began trial mining operations. More than 80,000t of ore was mined and processed off-site at the Ducat (400km south) and Karamken (800km south) plants.

Following the break-up of the Soviet Union, in February 1993 Cyprus Amax of the USA formed a joint venture with Russian partners Geometal, Magadan Gold & Silver, Dukat GOK and the Northern Native People Association. The joint venture was called the Omolon Gold Company and in July 1993 it was the successful bidder for the full development of the Kubaka gold mine. Cyprus Amax initially had 50% of the JV.

Project construction commenced in 1994 and stripping of the open pit began in June 1996. The mill started up in 1Q 1997 and commercial operation was achieved in June 1997. Over the six years from 1997 to 2002 the Kubaka mine milled 4.5Mt of ore to produce 2.6Moz of gold, at an average rate of 430koz per annum. The average cash production costs were just under US$150/oz.

Over the six years from 1997 to 2002 the Kubaka mine milled 4.5Mt of ore to produce 2.6Moz of gold.

In 1998 Kinross Gold merged with Amax Gold, the gold operations subsidiary of Cyprus Amax. The ownership in the JV over Kubaka was included in this deal and Kinross thus gained control of the project in June 1998. Over the next few years Kinross increased its holding in Omolon Gold to 54.7%.

By the end of 2002 the main Kubaka open pit was exhausted. However, gold production continued in 2003 from low-grade ore stockpiles (average 3.8g/t) and plans were made to mine some underground deposits on extensions of the Kubaka vein system and on the Tsokol vein system, which also falls in the Kubaka mining licence. Further resources are available at the Birkachan deposit, located 28km north of Kubaka and accessible by winter road. During 2003 a licence to develop an open pit mine at Birkachan was received and plans were progressed.

At the end of 2002, the remaining reserves and resources in the Kubaka area totalled 1.16Moz of gold, broken down as shown in the table below.

Exhibit 21. Kubaka region – gold reserves / resources, December 2002

Deposit	Class	Tonnes '000t	Grade g/t	Gold '000oz
Reserves:				
Kubaka stockpiles	Proven	1,621	3.8	198
Kubaka u/g	Proven	61	22.5	44
	Probable	61	22.5	44
Sub-total				***286***
Resources:				
Birkachan open pit	Measured	304	11.0	107
Birkachan u/g	Inferred	1,468	12.1	569
Tsokol zone	Inferred	587	10.5	198
Grand Total				**1,160**

Source: Kinross Gold, "Technical Report on the Kubaka Project", February 2003

In the first nine months of 2003 Kubaka produced 133koz of gold, mainly from the treatment of low-grade stockpiles. Kinross expected to produce 55koz in the

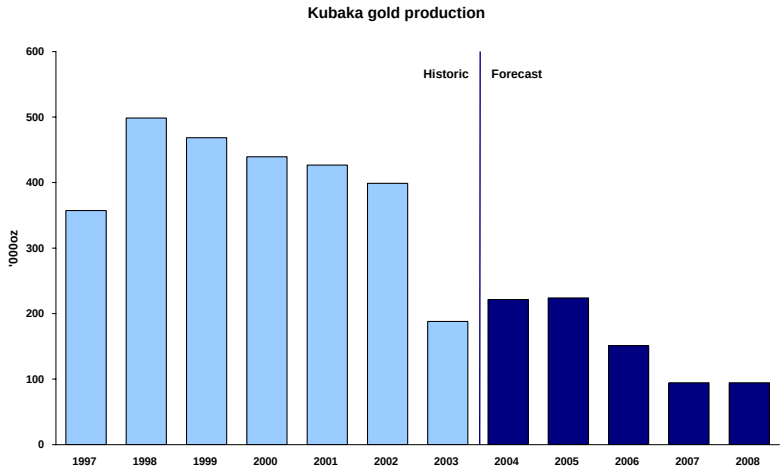
fourth quarter, making a total of around 188koz for the full year. This is less than half the production rate for the previous six years.

In late 2002 / early 2003 Kinross purchased most of the balance of the shares in Omolon Gold Company, taking its holding in Kubaka up from 54.7% to 98.1%. The total cost of this deal was US$44.7M – which equates to US$87 per ounce of resources / reserves remaining at Kubaka, Tsokol and Birkachan.

Looking ahead, we expect production to continue at the Kubaka plant, albeit at a lower level than in the mine's heyday. With the opening up of the higher-grade open pit at Birkachan and underground mining at Tsokol, we estimate production of around 225koz in both 2004 and 2005. Production may then fall off to around 100koz unless exploration in the area locates

With the opening up of the higher-grade open pit at Birkachan and underground mining at Tsokol, we estimate production of around 225koz in both 2004 and 2005.

Exhibit 22. Kubaka mine - gold production, 1997-2008



Source: Kinross Gold annual reports, 3C estimates

Financials

Kinross Gold is in a strong financial position. At the end of September 2003 (the latest available accounts) the balance sheet showed net current assets of US$155M, including US$141M in cash, offset by just US$11M in long-term debt. During 4Q 2003 Kinross sold equity positions in a number of companies to generate US$27M in cash; received US$35M through the exercise of share warrants; and generated positive cash flow from operations. As a result, the company had cash reserves of almost US$250M at the end of 2003.

With regard to Kinross Gold's Russian operations – the focus of this report – the operations at Kubaka look set to play a much reduced role in the future. Although Kinross now owns almost 100% of Kubaka (up from 55% in recent years) the production level at the mine has fallen sharply with the end of open pit mining and is now dwarfed by production from Kinross's other gold operations. Looking ahead, Kubaka may contribute around 13% of Kinross Gold's attributable gold production in the next couple of years, but this could fall to well under 10% in 2007 onwards.

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Norilsk Nickel

Company history

The mining and processing of nickel ores in the Soviet Union began in the 1930s at three sites.

The original Norilsk mine and plant was developed on the Taimyr Peninsula, some 2,000km north of Krasnoyarsk, starting in 1935. The first copper-nickel matte was produced in 1939 and by 1953 the operations were producing 35% of the Soviet Union's nickel, 12% of its copper and 90% of its PGMs.

On the Kola Peninsula two copper-nickel operations were developed around the same time. The Severonickel mine and plant was built in 1935 and operates in the town of Monchegorsk in the Murmansk region. Inco built the Pechenganickel mining and metallurgical operations in 1940, on the northwest of the Kola Peninsula in an area that at that time belonged to Finland. After World War II this area was transferred to the Soviet Union.

In 1989 the USSR government brought together the three nickel producing combines to create the "State Concern for the production of Non-Ferrous and Precious Metals Norilsk Nickel". The assets included the operations of Norilsk, Pechenganickel and Severonickel, plus the Olenegorsk mechanical works, the Krasnoyarsk non-ferrous metal processing works and the Gipronickel Institute in St Petersburg.

Norilsk Nickel now has a market capital of US$15.3Bn.

In 1993 the State Concern Norilsk nickel was transformed by decree into the Russian Joint Stock Company ("RAO") Norilsk Nickel. In 1994 shares in the company were distributed, partly to the workforce and partly through sale by voucher. The controlling share block, 38% of the total or 51% of the voting shares, was retained by the state. In 1995 this control block was put forward at a mortgaging auction, and nominal control of RAO Norilsk Nickel passed to Unexim bank in return for a loan of US$170M.

In 1997, a commercial auction was held for the controlling stake in Norilsk and the winner was Swift, representing Unexim bank's interests. The price paid was US$270M to the state, plus US$300M transferred to Norilsk Nickel for plant developments and RUR400Bn (approximately US$70M) to maintain the infrastructure in the Norilsk region and to pay off debts to the State Pension Fund.

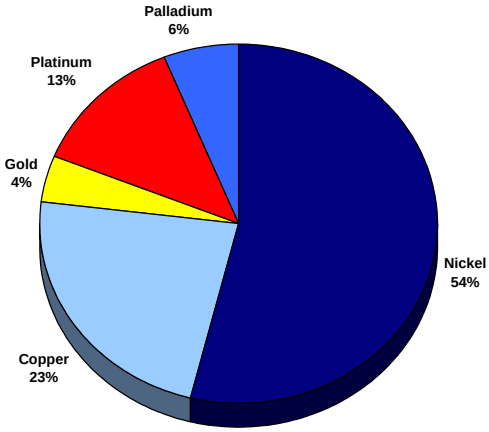
In 2001 the shares of RAO Norilsk Nickel were exchanged for shares in Mining and Metallurgical Company Norilsk Nickel ("MMC Norilsk Nickel"). A final stage in the restructuring in 2002 removed a remaining crossholding between RAO Norilsk Nickel and MMC Norilsk Nickel. The new structure is now in line with normal Western company arrangements and Norilsk reports its accounts in compliance with International Accounting Standards.

Norilsk Nickel now has 213.9M shares in issue, which at the current price of US$71.50/share gives a market capital of US$15.3Bn.

Gold expansion plans

Norilsk has always produced a small amount of gold as a by-product of its copper-nickel operations. In 2002 gold production from these sources totalled 125,000oz, down slightly from 132,000oz in 2001. Gold accounted for 4% of the company's total revenues in 2002.

Exhibit 23. Norilsk – Revenue breakdown, 2002



Source: Norilsk Nickel reports

Norilsk has taken a strategic decision to increase its exposure to gold production, with the intention of increasing revenues from gold to 20% of the group total. To this end the company has made a series of acquisitions over the past two years.

Norilsk has taken a strategic decision of increasing revenues from gold to 20% of the group total.

- In October 2002 Norilsk purchased 100% of ZAO Polyus, which operates the Olimpiada gold mine in the Krasnoyarsk region, at a cost of US$226M. Olimpiada has proven reserves of 2.3Moz and resources totalling 22.6Moz. The price paid for Polyus thus equates to approximately US$9 per ounce of resources + reserves.

  Olimpiada produced 15t or some 480koz of gold in 2001, but the installation of a second production line in late 2001 / early 2002 boosted gold production to 807koz or 25t in 2002. This production is still from the cap of oxide ore; this is nearing exhaustion and the mine will then have to treat lower grade (4g/t vs. 10g/t), sulphide ore that will require oxidation. Nonetheless, with the technical and financial backing of Norilsk, we expect the mine to maintain gold production at around 850koz per annum in the future.

- In August 2003 Norilsk bought 38% (50.7% of voting shares) of "OAO Matrosov Mine" for RUR1,033M or US$34M. Matrosov has the rights to the Natalinskoye gold deposit, which has total proven reserves (under Russian standards) of 250t or 8Moz of gold. The price paid for 38% of Matrosov thus equates to approximately US$11/oz.

Matrosov currently produces around 30koz of gold per annum. However, Norilsk expects to be able to increase the total resources to 600-800t (equal to 19-26Moz) of gold and intends to boost gold production to more than 10t or 325koz per year.

- In September 2003 Norilsk bought 44.9% (58.55% of voting shares) of "OAO Lenzoloto", at a price of RUR4,665M or US$153M. Earlier in the year Norilsk had bought 5.6% (7.32% of voting shares) in Lenzoloto from the Irkutsk administration for US$2.7M. The new deal takes Norilsk's total holding to 50.5% (65.9% of voting shares) of Lenzoloto, at a total cost of US$156M.

  Lenzoloto has reserves (under Russian standards) of 200t or 6.4Moz of gold, and additional resources of 100t or 3.2Moz. The price paid for the overall 50.5% of Lenzoloto thus equates to approximately US$32 per ounce of reserves + resources.

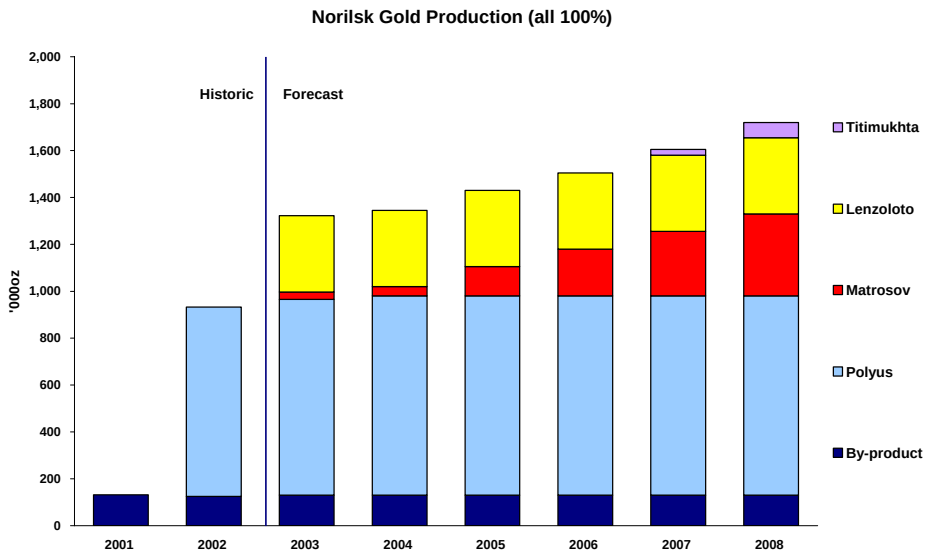
  Lenzoloto produced 7.3t or some 230koz of gold in 2002 and production in 2003 is estimated at 300koz. This production is currently all from placer deposits, which implies a life of around 10 years on the present estimated placer reserves of 100t. However, there is also 100t of hard rock reserves and Norilsk is likely to look to develop these, boosting production and / or extending the life.

- Most recently, in December 2003, Norilsk (through its subsidiary, Polyus) won the rights to develop the Titimukhta gold field, in the northern Yenisei area of the Krasnoyarsk region, close to Olimpiada. Titimukhta has reserves of 34t or some 1.1Moz of gold, grading from 2.2 – 9.5g/t and amenable to open pit mining. The licence calls for a full geological survey to be completed by 2005, with full-scale production started by 2007. Norilsk expects Titimukhta to produce at least 2t or 65koz of gold per annum.

In total, Norilsk's gold production is expected to grow from just 132koz in 2001 to around 1.7Moz in 2008 – a 13-fold increase. Attributable gold production will grow somewhat less, to 1.3Moz or 10 times, but this is still impressive. We estimate that gold revenues (based on 100% of production) could be around 15% of the total revenues by 2007/08.

In total, Norilsk's gold production is expected to grow from just 132koz in 2001 to around 1.7Moz in 2008.

Exhibit 24. Norilsk – Total gold production (all 100%)



Source: Norilsk Nickel reports, 3C estimates

There is considerable speculation that Norilsk Nickel wants to acquire the giant Sukhoi Log gold deposit.

There is considerable speculation that Norilsk Nickel wants to acquire the giant Sukhoi Log gold deposit, which is expected to be sold at auction later this year.

Sukhoi Log is located in the Lena goldfield, 850km north of the city of Irkutsk and close to the operations of Lenzoloto. The deposit was discovered in 1961 and exploration so far gives estimated resources (to Russian standards), at a cut-off grade of 1g/t gold, of 384Mt grading 2.6g/t for a total of 32Moz. Additional low-grade resources total 165Mt at around 2.1g/t for 11Moz of gold.

At full production an open pit mine on Sukhoi Log is expected to produce 750 – 1,250koz of gold per annum, giving a life of +20 years. The full cost of development is estimated at more than US$1Bn.

Norilsk believes that the ownership of Lenzoloto is key to winning the auction for Sukhoi Log. The company estimates that the proximity of Sukhoi to Lenzoloto, with its existing, developed infrastructure in place, will allow it to save around US$300M on the development costs for Sukhoi Log. This will give Norilsk an edge in any bidding battle for Sukhoi Log.

The acquisition and development of Sukhoi Log would allow Norilsk Nickel to meet its target of generating 20% of its revenues from gold, probably by around 2007 or 2008. This is dependent, however, on the relative prices of nickel, platinum, palladium and gold.

Financials

Norilsk Nickel is a profitable company, despite the poor prices for its principal products from time to time. In 2002, with nickel averaging US$3.06/lb and copper US$0.72/lb, the company reported net earnings of US$315M or US$1.47/share. This was down from US$411M or US$1.92/share in 2001, but still a creditable performance in what were tough times.

The recovery in metal prices in 2003 should see Norilsk report considerably better earnings than in 2002 – though the company has recently cautioned that

analysts' estimates may be too high. In 2003 the average nickel price rose to US$4.36/lb, up 42% from 2002. However, Norilsk's sales were weighted in the first half of the year, when the price was still low, and so the company will not see the full benefit of the higher nickel price in 2003. In addition, activities on the LME are expected to show a loss in 2003, of not more than US$50M. Finally, Norilsk's subsidiary Stillwater Mining may have to take a write-down on its book value on the back of reduced ore reserves due to the lower palladium price. This would be reflected in Norilsk's accounts and would reduce the company's earnings – though not the cash flow.

The recovery in metal prices in 2003 should see Norilsk report considerably better earnings than in 2002.

Nonetheless, in November 2003 the board of Norilsk recommended a special interim dividend for the first nine months of 2003 of RUR42.1 per share, equal to US$1.48/share at the current exchange rate, to be paid before 28 February 2004. Clearly the earnings will still be well up on 2002, probably around US$800 - 900M in total or US$3.75 – 4.25/share.

Norilsk had a strong balance sheet at the end of 2002, with net current assets of US$1,808M including US$424M in cash. The major item in the current assets was inventories, valued at US$1,836M, and some of these have since been sold as Norilsk placed an extra 60,000t of nickel in the market early in 2003, realising around US$500M. Long-term debt stood at just US$147M, including financial leases.

With such a strong balance sheet and earnings base, Norilsk will be well placed to both bid for and fund the development of Sukhoi Log – and any other major gold projects that arise.

Norilsk will certainly be a powerful force in the Russian gold market in the future – even if it does not win Sukhoi Log the company is currently the largest gold producer in Russia and the 10th largest in the world. However, for investors looking specifically for investments in Russian gold, Norilsk may not be the best vehicle as the gold production is diluted by massive production of nickel and copper so that the share price is more influenced by base metal prices than by the gold price.

With such a strong balance sheet, Norilsk will be well placed to both bid for and fund the development of Sukhoi Log.

Oxus Gold

Company history

Oxus was established in 1996 with a focus on gold and base metal projects in the former Soviet states of Uzbekistan and Kyrgyzstan. The most prominent asset was its 50% shareholding in the Amantaytau gold project, which was the key to its original listing on the London AIM market in 2001.

The company encountered a number of problems in 2001 and 2002, including:

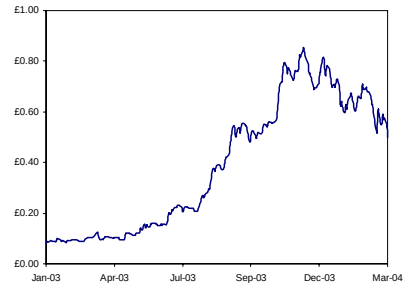
- Failure to meet the criteria required for project finance facilities from the banks to build the first phase of the Amantaytau mine.
- Annulment of the Jerooy mining licence in June 2002.
- Escalating corporate / fixed costs.

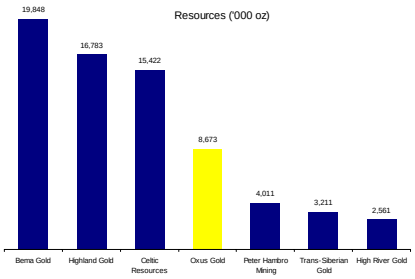
All this saw a stagnating / lack-lustre share price performance, and eventually led to new management taking over the group in November 2002. With the management changes also came a change in name, from Oxus Mining to Oxus Gold, signalling a clear intention of becoming a focused gold company and the objective of being rated as a gold producer.

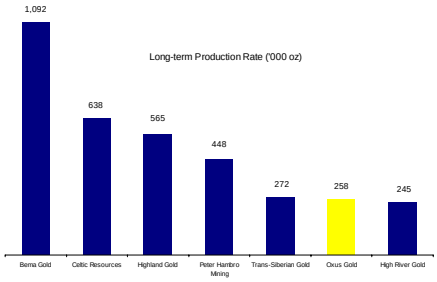
The timing of the management changes could hardly have been more opportune as the gold price rose above $300/oz in spring 2002 and on through $400/oz in December 2003. Combined with a review of the Amantaytau Phase I development, a reduction in capital requirements, and a successful syndicated bank financing in April 2003, the company could at last begin to move forward towards being a producer.

We recognise that Oxus Gold is not actually a Russian gold producer – but it is listed on AIM and is viewed in the same way as the other companies in this report by most Western investors. We have therefore included Oxus Gold in this report on Russian Gold (but we have *not* included its gold production in our forecasts for the total Russian gold production).

52-WK HI (12/10/03)	£0.86
52-WK Lo (04/09/03)	£0.10
Shares Issued	195M
Market Cap.	US$183M







The operations / projects

Oxus has three advanced exploration and development projects. These are a 50% shareholding in the developing Amantaytau gold mine; a 66.67% shareholding in the Jerooy gold project; and a 59% holding in the Khandiza polymetallic deposit, held through the separately listed Marakand Minerals.

Amantaytau gold mine (50%)

The Amantaytau gold mine is located in the Kyzylkum region of Uzbekistan, close to the giant Muruntau open pit gold mine and Newmont Mining's Zarafshan heap leach gold project. Oxus Gold has a 50% shareholding in Amantaytau, with operational control and management of the project. The Uzbekistan government holds the remaining shares.

The operation is a gold / silver mine with five discrete deposits (three oxides, two sulphides). A preliminary feasibility study for the underground operations was completed in 2000 followed by an audit of the reserves and resources in 2002.

This work showed reserves on a 100% basis (to JORC standards) of 846koz of gold in the oxide zone, grading 3.2g/t, and a further 2.2Moz grading 2.0g/t in the resource category. The oxide zone forms Phase 1 of the mine's development.

The underlying sulphides (Phase 2) contain reserves of 2.0Moz of gold grading 11.5g/t, with resources of 2.7Moz grading 11.7g/t. Within the sulphide reserve, the Severny deposit contains 1.6Moz or some 80% of the total.

Additional potential also exists in the Balpantau and Aristantau deposits within the company's regional licence.

During 2003 the company used its $30m project finance facility to build a new Carbon-In-Pulp (CIP) processing plant and other infrastructure at Amantaytau. Mining of the oxides began in August 2003 and the first gold was successfully poured, approximately on schedule, in the first week of January 2004.

The initial mine plan calls for mining and processing of 1.0Mtpa of oxide ore to produce some 190,000oz of gold per year at an average cash cost of $106/oz. This places the project in the industry's lowest cost quartile.

As part of its financing agreement Oxus had to hedge 263koz of gold at US$323/oz for the first two years of production. Although this is below the current gold price, given the project's problems in securing loan facilities in the past, perhaps this is a small price to pay for the opportunity to progress. At 190koz per annum and a gold price of US$323oz, the project potentially generates an operating cash margin of around US$215/oz and hence approximately US$40M per annum in operating cash flow (before interest, capital items and taxation). The company should easily be able to repay its bank loan obligations as well as recover the US$13m loan advanced to the Amantaytau project by Oxus since 2001.

During 2004 Oxus plans to continue to expand production from the current 1Mtpa to around 2Mtpa. Even allowing for a lower average grade of ore this should give gold production of around 275koz per annum.

The company will also finalise the feasibility study on the sulphide ores. An earlier pre-feasibility study (prepared by Lonmin) looked to mine 850ktpa of ore to produce 390koz of gold at cash costs around US$120/oz. This may prove to be a little optimistic, but mining, say, 750ktpa ore at an average grade of 11g/t would produce around 250koz of gold per annum. We will await the feasibility study results with interest.

Jerooy project (66.67% owned)

The Jerooy project is located in northern Kyrgyzstan, some 190km from the capital city, Bishkek. During 2003 Oxus's licence for Jerooy was reinstated following negotiations with the Kyrgyz Government - and the company's shareholding was increased to 66.67%, held via its 100% owned subsidiary Norox Mining.

The 2002/03 annual report (produced in September 2003) details the oxide reserves within the open-pit at 640koz of gold grading 4.9g/t and the underground sulphide reserves at 1,750koz grading 9.3g/t. Oxus's share of the total reserves is 1.6Moz. In addition, measured, indicated and inferred resources total 3.2Moz, with 2.15Moz attributable to Oxus.

The mine plan calls for mining and processing 1Mtpa of ore to produce some 180koz of gold per annum, over a mine life of 11 years. Cash operating costs are estimated at US$133/oz. The capital cost of the mine development is estimated at US$57M.

Contractors moved on-site in October 2003 to begin construction and the company stated in its interim review to December 2003 that "*financing of the Jerooy Project is currently being addressed*" and that full-scale mine construction should start in April 2004 and full production from 2005. The company has also indicated that it expects underground drilling to further enhance the resource and reserve base.

Khandiza project (59% owned, through Marakand Minerals)

The Khandiza project is a high-grade zinc, silver, copper and lead deposit located in the Sariasia region of southeast Uzbekistan. At June 2003, the reserves stood at 6.85mt grading 13.97% Zn, 1.68% Cu, 6.67% Pb, 245g/t Ag and 0.56g/t Au (equivalent to approximately 26% zinc).

Oxus transferred its shareholding in the Khandiza deposit to Marakand Minerals, which listed on AIM in December 2003.

Oxus transferred its shareholding in the Khandiza deposit to Marakand Minerals, which listed on AIM in December 2003. Following a dividend to Oxus shareholders of 1 Marakand Minerals share for every 10 Oxus shares held, Oxus now holds approximately 59M Marakand Minerals shares, equivalent to 59% of the issued shares. The market value of this holding is approximately £29M, or some 15p per Oxus share.

Reserves and resources

Oxus gave a detailed breakdown of the gold reserves and resources at Amantaytau and Jerooy in the 2003 Annual Report – all calculated to Western (JORC) standards. In February, the company announced some small increases in these numbers, but also gave "additional Uzbek resources" that are estimated according to Russian standards. The current position of the reserves and resources is summarised in the table below.

Exhibit 25. Oxus Gold reserves / resources

Deposit	Reserves Gold '000oz	Reserves Silver '000oz	Resources Gold '000oz	Resources Silver '000oz	Added exploration Gold '000oz	Added exploration Silver '000oz
Western classification (JORC)						
Amantaytau:						
Oxides	846	9,218	3,891	10,159		
Sulphides	2,030		2,686			
Total	2,876	9,218	6,577	10,159	9,860	234,650
Jerooy						
Total	2,700		3,220		230	
Grand total	5,576	9,218	9,797	10,159	10,090	234,650
Additional Uzbek resources						
C2					370	
P1					15,830	336,460
P2					14,880	57,690
Total additional					31,080	394,150

	Gold 'Moz	Silver 'Moz		Gold 'Moz	Silver 'Moz
Grand totals					
As to 100%:			*Attrib. to Oxus:*		
Gold & silver	56.5	648.2	Gold & silver	29.3	324.1
Gold equivalent	65.8		Gold equivalent	33.9	
JORC reserves / resources					
As to 100%:			*Attrib. to Oxus:*		
Gold & silver	15.4	19.4	Gold & silver	8.7	9.7
Gold equivalent	15.6		Gold equivalent	8.8	

Source: Oxus Gold, 3C estimates

The latest announcement shows that Oxus controls some 66Moz of gold equivalent reserves / resources, with around 34Moz of gold equivalent attributable. However, if only the JORC reserves / resources are considered (which is the case with most of the Western companies operating in Russia) the total falls to some 16Moz of gold equivalent with almost 9Moz of gold equivalent attributable.

While the Russian "P" resources fall outside of the JORC code guidelines, the company is clearly flagging the exploration potential and that this is starting to add value for shareholders. In our view, only once the latest identified "P" resources have been promoted to JORC classifications should the market bring those to bear in its valuation assessment and, having clearly stipulated in the past that reserves and resources are presented according to JORC guidelines, it is particularly disappointing that Oxus management feel that they need to "boost" their "reserve-base" in this way. After all, 9Moz of gold equivalent resources is a good base for any junior gold company.

Production profile

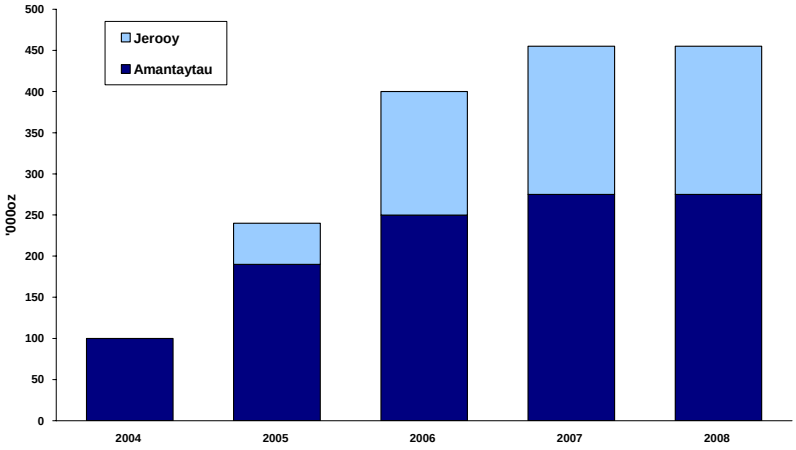
The Amantaytau gold mine is now in production and had produced over 6,000oz of gold by the end of February 2004. We expect the production rate to gradually build up through 2004 and estimate total production of some 100koz in 2004,

then the full 190koz in 2005. The expansion of the plant to 2Mtpa should allow production to grow to an estimated 275koz in 2007.

At Jerooy the feasibility study is complete and construction is expected to start in mid-2004. Gold production is planned to start in 2005 and we forecast 50koz in that year. The mine should build up to its full rate of 180koz per annum by the end of 2006.

With two mines in operation the total production is expected to grow to around 450koz per annum in 2007, of which almost 260koz is attributable to Oxus Gold. Cash costs are expected to be low at both operations, with an average of less than US$125/oz at full production.

Exhibit 26. Oxus Gold – forecast total gold production



Source: 3C estimates

Financials

Oxus Gold's interim balance sheet, as at end December 2003, shows net current assets of US$7.4M with no long-term debt, as the loans to build Amantaytau are off-balance sheet and non-recourse to the company. In fact, Oxus is owed US$14M by the Amantaytau JV.

The shares have had a strong performance over the past year, up 956% vs. 200% average.

The capital cost to develop Jerooy will be US$57M, with Oxus responsible for two-thirds or US$38M. The company is in negotiations over funding this, but it is possible that some equity will be raised rather than all bank debt, as was the case for Amantaytau.

Oxus has 195M shares in issue, giving a market capital of some £101M or US$183M. The shares have certainly had a very strong performance over the past year, up 956% vs. 200% average. This was helped by the success at Amantaytau, the flotation of Marakand Minerals and the general increased interest in mining shares. The share price has since pulled back somewhat, to around 52p at present – though this is after the Marakand Minerals shares were dividended out. To raise, say, US$20M in equity towards the cost of developing Jerooy should not be a problem and would only give 10% dilution.

Peter Hambro Mining

Company history

The company's origins go back to 1994 when a company controlled by Dr Pavel Maslovsky acquired the licence for the Pokrovskiy gold deposit, located in the Amur region of Eastern Russia. Peter Hambro Mining Ltd was formed in 1994 and raised venture capital to fund a feasibility study of the Pokrovskiy deposit, acquiring a 16.6% interest in the property. The licence was subsequently transferred to the Russian Joint Stock Company Pokrovskiy Rudnik ('JSCP') in 1997.

Between 1994 and 1999 exploration and feasibility studies at the Pokrovskiy mine were completed, financing secured and the mine developed. The Pokrovskiy mine began production in 1999, using heap leaching to recover gold.

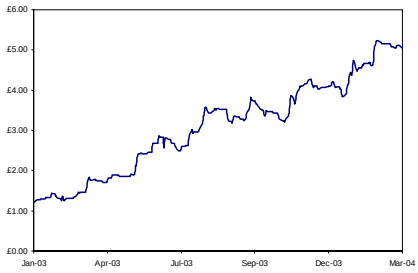
Peter Hambro Mining plc ('PHM') was incorporated in December 2001 and acquired all the issued share capital of the original Peter Hambro Mining Limited, which by then held 53.1% of JSCP, in exchange for PHM shares. During 2002 the company increased its holding in JSCP to 97.69%, through the issue of PHM shares to the original Russian holders of JSCP shares.

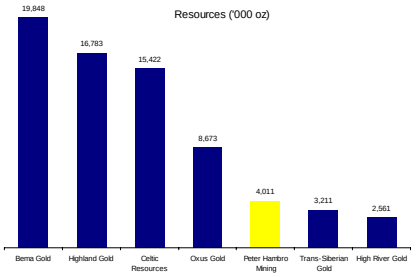
Whilst the core property of PHM is the Pokrovskiy mine, the company has been actively acquiring other operations and development properties in Russia.

- In 2001 JSCP won the tender for the Pioneer gold deposit, located some 35km from Pokrovskiy.
- In February 2003, PHM signed a 'Heads of Agreement' to form the Omchak joint venture in the Magadan region of Russia with OJSC Susuman Mining Complex and OJSC Gold Mining Company Shkolnoe. The two partners put in mining operations, while PHM contributed US$7M in cash. The agreement was finalised later in the year.
- In March 2003, the company announced the acquisition of the Tokur Gold deposit, with an estimated 8.2Moz of gold in resources. The cost was US$36M, partly funded through a share issue that raised some US$26M.
- PHM also won a tender to undertake exploration at the Voroshilovskoe deposit and the area surrounding the Malomir deposit in the north-east Amur region.

Following these developments, PHM's structure is as shown below:

52-WK HI (02/27/04)	£5.23
52-WK Lo (04/01/03)	£1.71
Shares Issued	58M
Market Cap.	US$533M





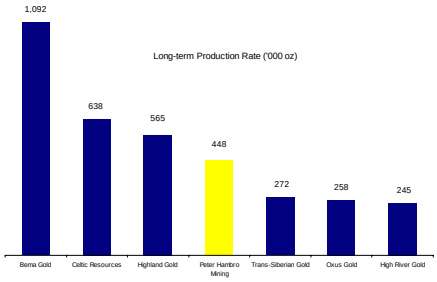
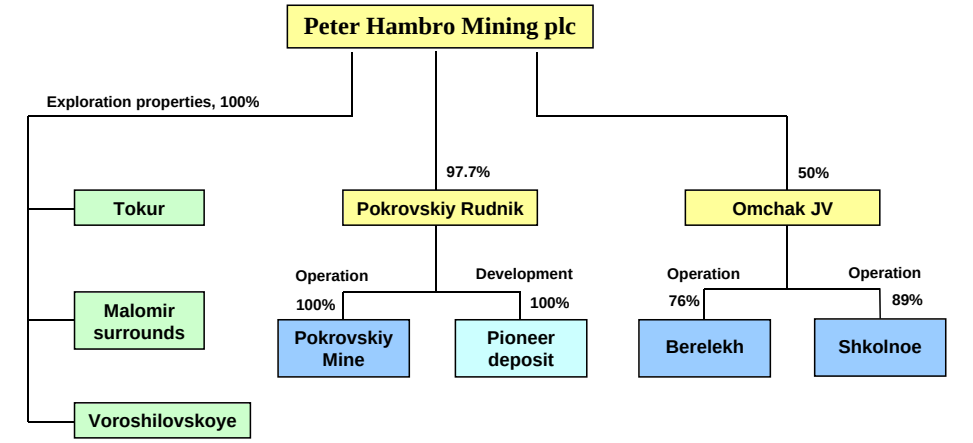


Exhibit 27. Peter Hambro organisation chart



Source: 3C

In December 2003 PHM announced the flotation of its titanium assets in a separate company, Aricom plc, through a Tender Offer that raised approximately US$3.5M. This leaves PHM as a purely Russian gold focused company.

The flotation of its titanium assets in a separate company, Aricom plc, leaves PHM as a purely Russian gold focused company.

The mining operations

PHM has one operating and one developing mine, together with several joint venture exploration and development properties and projects, all based in the Far East of Russia. The company has stated it expects to develop further joint ventures and / or selectively make further acquisitions.

Pokrovskiy mine (owned 97.7%)

The Pokrovskiy mine is located in the Amur Oblast, approximately 320km north of the region's capital city, Blagovesvhensk. The mine started production in 1999 as a 600kt per annum heap leach operation. In 2001 / 2002 a 1mtpa resin in-pulp and milling plant was developed.

Gold production rose from just 14koz in 1999 to 88koz in 2001, all from the heap leach. In 2002 the gold production fell to 70koz (45koz from the heap leach, 25koz from the new mill) due to mining lower grade ore and teething troubles at the new mill / plant. However, production has increased again to 120koz in 2003 with a full year of operation at the mill and resin-in-pulp plant.

The original resources at Pokrovskiy mine were estimated at some 3Moz in the Russian C1, C2, P1 and P2 categories. Of this total, some 1.3Moz at an average grade of 3.8g/t was contained in the open pit and its immediate surrounds, all classified as C1 and C2 ore. In 2001 the average ore grade put on the heap leach was 9.6g/t; in 2002 the average ore grade through the mill and the heap leach was 5.3g/t. Clearly, if the ore resource statistics are correct the average grade must reduce going forward.

This is no doubt part of the reason for the implementation of a plant expansion, to 1.5Mtpa, that is expected to come into production in 4Q 2004. The expanded resin-in-pulp plant will more than make up for the lower average ore grade treated. We estimate that total production from Pokrovskiy will increase to around 140koz in 2004 and almost 200koz in 2005.

The full production costs at Pokrovskiy peaked at around US$300/oz in 1Q 2003 due to both seasonal factors and teething problems at the new mill. By June 2003 the costs were down to around US$170/oz as the new mill got into its stride. Looking ahead we expect the full production costs to average around US$175-190/oz, so with a gold price of US$400/oz Pokrovskiy will generate gross profits of around US$30M in 2004.

In February 2004, PHM announced that the resources at Pokrovskiy had been increased by 6.9Moz of gold – all in the P2 category. No details of grade or location of this ore is available at this time, and we are in any case wary of the Russian 'P' category of resources (*see later discussion*). This took the total resources at the mine, in all categories, to 9.9Moz.

Pioneer deposit (owned 97.7%)

The Pioneer deposit was acquired by JSCP in 2000, with a then estimated P category resource of 1.5Moz. Following exploration drilling in 2002, this estimate rose to 3.59Moz, with 1.62Moz in C2 and 1.97Moz in P. By February 2003, this estimate had risen to a total of 9.4Moz, with 1.8Moz in C2 and 6.6Moz in P.

The grade is highly variable, ranging from 2-3g/t to tens of g/t.

The ore body consists of breccias and quartz veins, with gold concentrated in altered rock / breccias. The grade is highly variable, ranging from 2-3g/t to tens of g/t; the highest values are around 110g/t, associated with large-scale fault structures. Exploration has selectively focused on the N/NE trending mineralised ring fracture systems at Pioneer that have been identified through geochemical and geophysical surveys, plus follow-up geological work and trenching.

Exploration in 2002 and 2003 identified a particular high-grade zone, called Apophysis 1. In the 2002 Annual Report PHM stated that Apophysis 1 contained C2 resources of 635koz gold grading 14g/t to a maximum depth of 282 metres. The company also commented that this zone extended over 120 metres, but that the geochemical signature extended over 1km to areas of previous artisanal working where grab samples gave results of 20-30g/t.

The plans shown in the 2002 annual report clearly show that only a small part of the total area has been thoroughly explored, leaving considerable potential for further resource addition (or definition) in the future.

PHM intends to begin mining at Pioneer, in 3Q 2004.

PHM now intends to begin mining at Pioneer, on the Apophysis 1 vein, in 3Q 2004. However, this will require permits for the construction and mining, which will be based on a Russian feasibility study or TEO. Whether all this can be done in the next six months remains to be seen.

We expect that the high-grade ore from Pioneer will, initially at least, be trucked to the resin-in-pulp plant at the Pokrovskiy mine for processing. This makes sense as it removes the need for a high level of capital spending at Pioneer and replaces lower grade ore from Pokrovskiy (at around 4.5g/t) with higher-grade ore (probably at around 12g/t allowing for dilution) from Pioneer. Trucking will be an added cost, but this can be justified for such high-grade material. We have also assumed that mining at Pioneer will build up to a rate of 300ktpa by 2006. This will produce around 110koz of gold per annum – though this will be offset by a drop of around 40koz per annum in the estimated production from Pokrovskiy ore.

Advanced Exploration Projects

Tokur (owned 100%)

The Tokur deposit was acquired in June 2003 at an initial cost of US$30M, paid as to US$6M in cash and US$24M through the issue of 6M PHM shares. A further 1.5M shares, valued at a nominal US$6M will be payable in two years provided 60t (=1.9Moz) of gold have been identified in the C2 category.

The deposit is located some 450km NE of the Pokrovskiy deposit. As at Pokrovskiy and Pioneer, gold is hosted in quartz vein and breccia/fracture systems. Tokur was discovered in 1939 and developed / worked during the Soviet Era. As a result, some 150km of underground development is already in place. In 2003 the company estimated the total resource base at 8.1Moz and further work could increase this estimate. Tokur is also one of the properties covered by the Confidentiality Agreement with Rio Tinto, hence PHM may be restricted in what it can tell the market regarding progress and developments in this area.

Tokur was discovered in 1939 and developed / worked during the Soviet Era.

We believe that after spending US$36M (albeit largely in shares) PHM will be keen to develop a mining operation at Tokur. With 8.1Moz of total resources (though at this stage there is no detailed breakdown by category) we expect that a production rate of more than 100koz of gold per annum is likely. We have therefore included gold production from Tokur starting in 2006 and building to an annual rate of 125koz by 2008. The development costs are a complete thumb-suck, but with considerable infrastructure in place we would suggest a maximum of US$50M.

Area surrounding the Malomir deposit

The Malomir deposit is located some 120km W-SW of Tokur and is thought to be of similar mineralization style to Tokur. Malomir itself has total resources of some 4.5Moz, with 1.6Moz in C2 and 3.9Moz in P.

PHM has acquired a licence to explore the area surrounding the Malomir deposit – not the deposit itself, which is still owned by the State. As such, this is grass-roots exploration with no known resources and no production prospects in the foreseeable future.

Voroshilovskoye

Voroshilovskoye is also located relatively near to Tokur, being some 60km to the SW. It is of similar mineralization style and geologic setting, with two major fault systems hosting the gold in known strike lengths of up to 10km. The veins are narrow, however, ranging from 0.03 metres to 0.5 metres thick. There has been previous mining in the area, concentrated on the fault zones. The property is estimated to have P1 resources of 100t or 3.2Moz, but no further details are available at this time.

Joint Venture

In February 2003 PHM announced it had signed a Heads of Agreement to establish a new JV gold company (OAO Omchak joint venture) in the Magadan region. The other partners in the JV, which has now been formalised, are OJSC Susuman Mining Complex (Susumanzoloto) and OJSC Gold Mining Company Shkolnoe (Shkolnoe).

PHM contributed US$7.2M in cash to the JV while its two partners contributed 76% of the Berelekh Mining Complex (from Susumanzoloto) and 89% of the Nel'kobazoloto Mining Company (from Shkolnoe). Berelekh is an alluvial operation with annual production of some 65koz of gold; Nel'kobazoloto is a hard rock mine producing around 30koz of gold per annum with C1 and C2 resources of some 250koz.

The main reason for entering into the JV was to participate in the auction of the State's 38% shareholding in the Matrosov Mine and licences for a 7.9Moz resource at the Natalka deposit. However, Norilsk was the winner in that auction, so that the JV is now focusing on other opportunities. The $7.2m cash injected into the JV by PHM for the original Matrosov bid remains available for other opportunities.

Mineral resources and Reserves

Based on data published in the company's annual report and supplemented by press releases since then, the following summary of PHM's gold resources has been collated.

Exhibit 28. Peter Hambro reserves and resources

Deposit	Gold ('000oz)		
	C1+C2	P1+P2+P3	Total
Pokrovskiy (97.7%)			
In pit / surrounds	1,315		1,315
Reserves (off balance)	348		348
Sub-total	1,663		1,663
Surrounding area	507	807	1,314
Added in 2004		6,900	6,900
Total	**2,170**	**7,707**	**9,877**
Pioneer (100%)			
Main orebody	1,780	1,840	3,620
Ore-shoots		5,800	5,800
Total	**1,780**	**7,640**	**9,420**
Tokur (100%)			
All zones		8,100	8,100
Total		**8,100**	**8,100**
Omchak JV (50%)			
Berelekh (76%)			
Nel'kobazoloto (89%)	250		250
Total	**250**		**250**
Voroshilovskoye (100%)			
All veins		3,200	3,200
Total		**3,200**	**3,200**
Grand totals:			
As to 100%	**4,200**	**26,647**	**30,847**
Attributable to PHM	**4,011**	**26,470**	**30,481**

Source: Peter Hambro Mining, 3C estimates

Investors should be aware that the majority of PHM resources fall into the Russian 'P' category.

PHM often comments on its large resource base, but investors should be aware that the majority of the resources fall into the Russian 'P' (for Prognostic) category. These would not be recognised under Western (JORC) standards for reporting of mineral resources and ore reserves.

If we ignore the P category resources, which allows comparison with the majority of Western companies operating in Russia that report to JORC standards, then PHM's attributable resources are just over 4.0Moz of gold.

The balance of these resources will need further exploration to prove up to the point that they can be developed and, indeed, regarded as economic.

PHM is aware of this discrepancy – it has installed Micromine software and its consultants are working toward translating the company's reserves and resources from a Russian classification into JORC classification. In its January trading update PHM stated that an update on group reserves and resources would be issued at the time of the Annual Report.

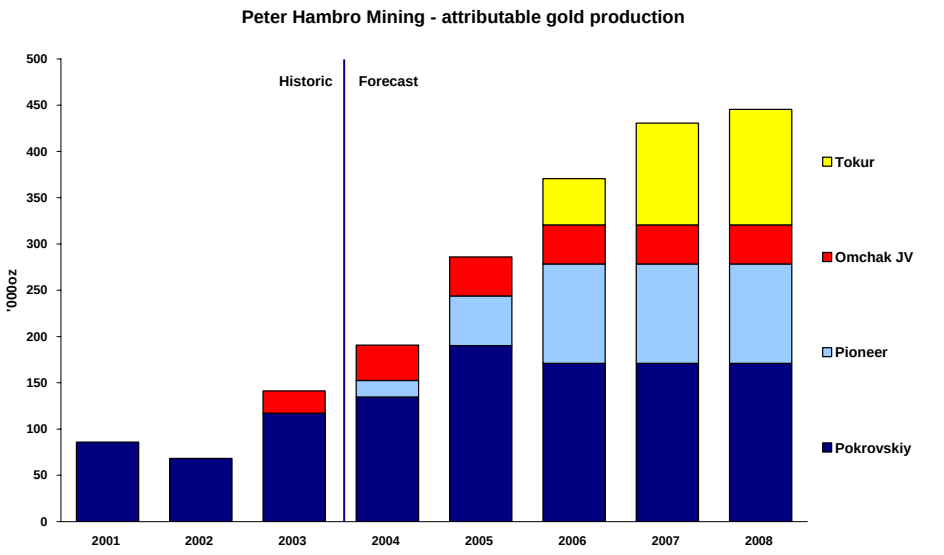
In its January trading update PHM stated that an update on group reserves and resources would be issued at the time of the Annual Report.

Production profile

The Pokrovskiy mine is currently the main source of gold production for PHM, with a small contribution from the Omchak JV. The Pioneer deposit will be brought into production in late 2004, though the company has not yet announced the exact method of processing the ore. We have assumed that the ore will be trucked to Pokrovskiy for treatment. In addition, we believe that the Tokur deposit will be brought into operation as soon as possible and we look for gold production to begin before the end of 2006.

These assumptions suggest that PHM's attributable gold production will grow from 141koz in 2003 to around 190koz in 2004, to almost 300koz in 2005, and then on to around 450koz in 2008 with Tokur at full production. The sources and total production are shown in the chart below.

Exhibit 29. Peter Hambro Mining – forecast attributable gold production



Source: 3C estimates

Financials

As at the end of June 2003 PHM's balance sheet showed net current assets of just US$3.8M – though the company had cash of US$27.5M in hand this was offset by short-term debt of US$28M, while stocks, debtors and trade creditors gave the small net positive balance. The balance sheet also showed long-term debt of US$17M, though half of this was for the 'Reserve Bonus Scheme', which may be paid through cash or shares.

We estimate that PHM will need a total of some US$110M to fund capital expenditure in the next couple of years. This is made up of an estimated US$10M to expand the plant at Pokrovskiy; US$25M to bring Pioneer into production as a satellite mine of Pokrovskiy; and US$75M to develop the Tokur deposit. These are very much 'thumb-suck' estimates at this stage, as no estimates have been given by the company.

With the cash in the bank in June offset by short-term debt, it seems likely that PHM will need to raise further equity finance towards this development capital. If the banks put up, say, 70%, this will leave PHM needing around US$33M in equity. With market capital of more than US$500M at present, this would imply dilution of less than 10%. This should be acceptable for the development of Pioneer and Tokur, which will approximately double the gold production from Pokrovskiy and the Omchak JV.

Trans-Siberian Gold

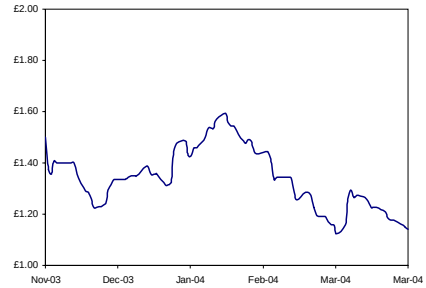
Company history

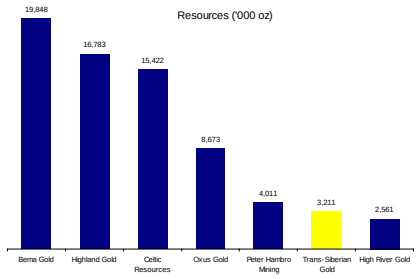
Trans-Siberian Gold plc ("TSG") was set up in 2000 with the objective of acquiring and developing Russian gold projects. In the four years since then the company has bought controlling interests in two projects, in Kamchatka and the Krasnoyarsk region. The major milestones in the company's history are as follows:

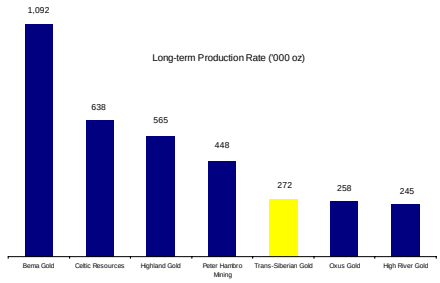
- In August 2001 TSG bought 50.5% of ZAO Trevozhnoye Zarevo ('Zarevo'), the company with the licences to the Asacha and Rodnikova deposits in Kamchatka, for US$0.7M. A further 40% (giving 90.5% in total) was bought in July 2002 for US$1.1M. The balance of 9.95% must be bought for US$1M when a formal decision to develop Asacha is taken by the TSG board.
- In July 2002 TSG bought 100% of OOO Gorno-Rudnaya Kompanyia Amikan LLC ('Amikan'), the company that holds the licenses over the Veduga deposit. TSG then also acquired the surrounding exploration area in the Krasnoyarsk region.

TSG has funded its development so far through a series of share issues, raising a total of US$17M between its formation in 2000 and August 2003. In November 2003 TSG listed on the AIM market, raising a further £16M (approximately US$25M net) to continue the development of the Company.

52-WK HI (01/27/04)	£1.65
52-WK Lo (03/05/04)	£1.13
Shares Issued	29M
Market Cap.	US$65M







The operations / projects

Veduga project (100% owned)

The Veduga gold deposit is located in the Krasnoyarsk region of Central Siberia, some 370km north of the city of Krasnoyarsk. The deposit is in the highlands of the Yenisei Ridge, an area covering some 400km by 200km bounded by the Yenisei River to the west and the Angara River to the south.

Gold was first found in the Yenisei region in 1839, in placer deposits along a number of rivers draining the Yenisei Ridge. Mining began soon after and continued on a small scale through the rest of the 19th century. The placer deposits were formed from the erosion of gold-quartz lode deposits in the northern portion of the Yenisei Ridge. Around the turn of the 20th century gold production began from these quartz deposits.

A new form of gold deposit, disseminated gold-sulphide mineralization, was discovered in the 1950s at the Olimpiada deposit. Understanding the geology / metallurgy of the deposit took some time and reserves at Olimpiada were only first defined in 1974. Gold production through a nearby mill then only began in 1985. Olimpiada's own mill was constructed in 1996 and regular production from the oxidised surface capping began in 1997. Production from 1998 to 2001 ran at 15-20 tonnes of gold per annum. Norilsk Nickel has now bought Olimpiada and production increased to over 25t (800koz) of gold in 2003.

In total, over the past 160 years or so, the Yenisei Ridge area has produced around 800 tonnes (or +25Moz) of gold, of which some 85% is from alluvial mining.

The Veduga deposit, 60km to the south of Olimpiada, was identified through geochemical and geophysical sampling in the 1970s. A more detailed exploration programme was carried out in the 1980s, including drilling down to a depth of 250 metres.

The Veduga deposit is just 60km the south of Olimpiada.

In the early 1990s a programme of drilling (on a grid pattern, down to 460 metres deep) and trenching was carried out. An adit was also driven into the Veduga hill, with crosscuts into the ore. By 1998, the exploration work included (approximately) 12,500 metres of drilling, 11,500 metres of trenching and 2,000 metres of underground development.

TSG negotiated a deal to purchase OOO GRK Amikan, the original owner of the Veduga deposit, in October 2001. The deal was concluded in July 2002, giving TSG 100% control of 'Amikan' and the Veduga gold deposit. The property consists of a mining licence covering 2.5km^2 over the Veduga gold deposit itself, plus an exploration licence over a further 540km^2.

Gold at Veduga is found in disseminated sulphide mineralisation, as at the Olimpiada mine. The sulphide materials are spread through the host rock in individual grains, aggregates and stringers, making up just 3-5% by volume of the mineralised rock. Much of the gold content is locked in 'invisible', refractory form in the sulphides and to extract it the sulphides must be broken down by chemical or biochemical processes.

The naturally oxidised ore at Veduga makes up only around 5% of the total. Testing has shown that around 45% of the gold is in refractory form in the sulphides, with the balance as free milling gold. However, separation of the sulphides, together with the free-milling gold, is possible, so that only a small fraction of the total ore needs to be treated chemically in order to break down the sulphides and extract the gold.

The calculated resources have grown from 1.8Moz in July 2003, to 2.1Moz in October 2003, and to 2.3Moz in January 2004.

Exploration to date at Veduga has identified thirteen ore bodies, though 70% of the gold resources so far are found in ore body #1. Since acquiring Veduga, TSG has carried out a major exploration programme, including diamond drilling and RC drilling. The results have been used, together with previous Russian data, to calculate resources to JORC standards. The calculated resources have grown from 1.8Moz in July 2003, to 2.1Moz in October 2003, and to 2.3Moz in January 2004 as results have been obtained from the drilling.

The mineral resources at January 2004 are summarised in the table below.

Exhibit 30. Veduga ore resources

Ore class	Tonnes '000t	Gold g/t	Gold '000oz	Tonnes '000t	Gold g/t	Gold '000oz
	Orebody 1:			*Other orebodies:*		
Measured	2,371	5.6	430	324	8.0	84
Indicated	3,089	5.2	515	1,770	4.9	279
Inferred	4,331	5.0	694	2,203	4.3	305
Sub-total	***9,791***	***5.2***	***1,638***	***4,298***	***4.8***	***667***

	All orebodies:		
Measured	2,696	5.9	514
Indicated	4,859	5.1	794
Sub-total	*7,554*	*5.4*	*1,307*
Inferred	6,534	4.8	998
Total	**14,089**	**5.1**	**2,306**

Source: Trans-Siberian Gold plc

There is still considerable potential for further expansion of these resources, both in the central mining licence area and on new targets in the greater exploration area. To this end, TSG currently has three drill rigs working on the mining licence area and two on the exploration area.

Approximately 70% of the resources so far defined at Veduga are less than 300 metres below the surface. The initial mining method for the Veduga gold deposit will therefore be open pit, extracting ore mainly from ore body #1. At a mining rate of 1.2Mt per annum this will last for 10 years. Underground mining will begin when the open pit is near exhaustion and will last for a further 4 years, at a mining rate of 0.6Mt per annum. The underground mine will extract the deeper ore in ore body #1 and the narrower ore in the other ore bodies that requires more selective mining. The ore grade from underground is therefore expected to be higher than in the open pit (5.4g/t vs. 4.7g/t), but the gold production rate will still fall due to the lower tonnage of ore.

The overall mine life will therefore be some 14 years. However, there is considerable scope for adding to the resources / reserves in the central mining zone and in the greater (540km^2) exploration area.

The total gold production over the life of Veduga is estimated at 2.0Moz.

The recovery process will include grinding and flotation, then oxidation of the flotation concentrates and CIL to extract the gold. Two possible routes of oxidation are being considered, namely pressure oxidation or bacterial oxidation.

The production schedule therefore estimates gold production of 160koz per annum from the open pit, at a cash cost of US$170/oz; then 95koz per annum from underground, at a cash cost of US$200/oz. The total gold production over the life of Veduga is estimated at 2.0Moz from 2006 to 2020 at an average cash cost of US$176/oz.

The capital costs to develop the open pit mine and plant have been estimated in the scoping study US$94M. A further US$10M has been estimated for the underground mine development, but this will only be required in a few years time and can be funded from cash flow.

Asacha / Rodnikova (90.5% owned)

The Asacha gold deposit is on the Kamchatka peninsula, in the far east of Russia, 150km by road southwest of the town / port of Petropavlovsk-Kamchatsky ('PK'). PK is the major access point into Kamchatka, which has no road or rail links with the rest of Russia. There is an all-weather road from PK for the first 90km to the Asacha site. The final 40km is a dirt road that is being upgraded for the project development and operation.

The Asacha deposit was discovered in 1973, but the area was closed to foreigners (and most Russians) until the 1990s due to strategic Russian military activities. The Soviets explored Asacha between 1973 and 1990, with some 3,000 metres of underground development, 28,000 metres of diamond drilling and more than 3,000 metres of surface trenching. This work defined a strike length for the deposit of more than 1,000 metres.

The Asacha deposit was discovered in 1973, but the area was closed to foreigners (and most Russians) until the 1990s due to strategic Russian military activities.

The Kamchatka government put Asacha up for tender in 1994 and a mining licence was granted to CJSC Trevozhnoe Zarevo ('Zarevo'). In 1995, TVX Gold Inc. ('TVX') bought a 50% interest in the property. From 1996 to 1998, TVX completed a further 19,500 metres of diamond drilling, extending the strike length of the deposit to some 1,700 metres. However, due to the low gold price in the late 1990s and the high capital cost estimates then made, TVX sold its interest in the project in 2000.

TSG acquired 50% of Zarevo in 2000 and increased its ownership of the company to 90.05% in 2002. TSG has an obligation to buy the remaining 9.95% of Zarevo for US$1M once a positive decision is made to develop a mine at Asacha.

The Asacha gold deposit lies within an extinct volcano, with a diameter of approximately 28km. The deposit is a typical low-temperature, epithermal vein-type, occurring at the intersection of two regional faulting systems. The gold mineralization is found in quartz veins that have been emplaced along north-south fault zones. The vein widths vary from very thin to 10 metres, with a general width in the mineralized zone of 2.0 - 2.5 metres.

The deposit is divided into the Main Zone, which contains the majority of the defined resources, and the Eastern Zone, about 500 metres to the east, which so far has only seen limited drilling. The veins strike north - south, and their dip ranges from vertical to around 60º. The sulphide content is very low, at around 0-5%. The Main Zone currently has a known strike length of around 1,700 metres, and the veins are known to extend to at least 300 metres below surface. However, the resource is still open at depth, and along strike to both the south and the north.

Asacha is a high-grade gold / silver deposit, with the gold grade measured in ounces per tonne in places. The average gold-equivalent grade, at around 23g/t or 0.67oz/t, is also high – which helps to offset the project's remoteness and (at present) small size.

At January 2004 the Mineral Resources at Asacha were estimated by AMC Consultants at 909kt grading 23.0g/t for a total of 671koz of gold equivalent (assuming a 60:1 gold:silver price ratio). The silver grade is on average just over

twice the gold grade, so silver makes up approximately 3% of the total 'gold-equivalent' metal content.

The Bankable Feasibility Study for Asacha calls for underground mining of 200kt per annum. However, it is possible that the upper part of the orebody could be mined first using open pit methods. This would improve the economics of the operation, but will require an amendment of the Russian mining license.

The high grade of the gold bearing veins at Asacha, together with the virtual lack of sulphides in the ore, mean that a simple process of grinding, direct cyanidation and carbon-in-leach ('CIL') recovery will be suitable. The ore has been extensively tested over the past decade and this process is expected to give overall recovery of 95% for gold and 75% for silver.

Production from Asacha is expected to be 100koz of gold equivalent per annum.

Production from Asacha is therefore expected to be some 100koz of gold equivalent per annum with average cash costs of US$161/oz (excluding the 6% gold sales royalty).

TSG will begin construction at Asacha in summer 2004 and the first gold production is scheduled for late 2005. The capital cost of developing the Asacha mine and plant is estimated in the BFS at US$54M.

The Rodnikova deposit is located some 60km north of Asacha, close to the all-weather road from PK to Asacha. The Rodnikova deposit was discovered in the early 1980s and was explored by Russian geologists between 1985 and 1989. The work done included 26,000 metres of diamond drilling, 4,800 metres of trenching and 3,900 metres of underground development. The ownership history of Rodnikova is the same as that of Asacha; initially licensed by Zarevo, which was bought by TVX in 1995 and then sold to TSG in 2000/02.

Like the Asacha deposit, Rodnikova is classified as a low temperature, epithermal gold-silver vein system. The Rodnikova deposit is also located in a hill, with the gold-bearing veins running mainly north-south along pre-mineralization structural lines. The highest grade zones lie close to surface on a south-facing hillside and are thus suitable for open pit mining.

Rodnikova is classified as a low temperature, epithermal gold-silver vein system.

Russian estimates of the gold resources at Rodnikova show a total of 1.25Moz of gold and 11Moz of silver, in the C1+C2 categories. TSG's geological consultant has reviewed all the available data from Rodnikova exploration and has estimated the resources to Western (JORC) standards at just 235koz gold equivalent.

Asacha is the major deposit of the Asacha / Rodnikova project and TSG plans to operate Rodnikova as a satellite mine feeding the processing plant at Asacha. The distribution of the veins and the topography of the deposit mean that the best mining method will be open pit.

The Rodnikova deposit is subject to heavy snowfalls in winter. Since the mine will only give a limited amount of additional feed to the Asacha plant, it is planned to mine the deposit only during the summer months, to give a total of 40kt of ore per year. This will add around 15koz of gold per annum.

With an open pit operation and the G&A costs borne by Asacha, Rodnikova is expected to have low cash production costs at around US$110/oz. The capital

costs are also expected to be low, at around US$2M to develop the open pit. Contractors are expected to be used for the mining and trucking.

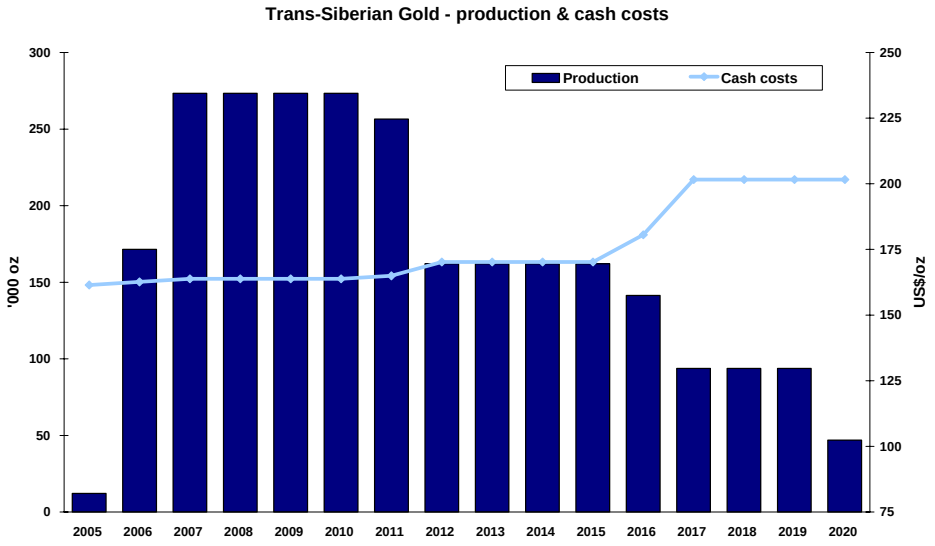
The Rodnikova deposit has not been included in the BFS for Asacha, as the ore reserves have not been verified to a sufficient level. However, we expect that some drilling and exploration in the next year will prove up enough resources for the deposit to be included in the ultimate mining plan. We have therefore included Rodnikova in our assessment of TSG, with production starting in 2006, once the Asacha mine and plant have been fully commissioned.

Production profile

TSG plans to bring the Asacha deposit into production first, in late 2005. The Veduga mine will follow in late 2006. We also expect the Rodnikova open pit to begin production in 2006. From 2007 to 2011 TSG plans to produce at a rate of approximately 275koz of gold per annum, at an average cash cost of around US$165/oz (before gold royalties of 6%). The production profile and cash costs for TSG over the lives of the mines are shown graphically below.

From 2007 to 2011, TSG plans to produce approximately 275koz of gold per annum.

Exhibit 31. TSG - forecast gold production and cash costs



Source: 3C estimates

Between 2005 and 2020 the three mines are expected to produce a total of 2.65Moz of gold, at an average cash cost of just over US$170/oz (excluding royalty payments).

TSG also has an exploration licence covering an area of 540km^2 around the Veduga mining licence. Previous Russian exploration work in this area, mainly geochemical sampling of soil and rocks, has identified a number of targets. Broad estimates of the possible gold content, based on comparisons with the original work on the Veduga mining licence and its current resources, suggest that the six strongest targets could hold more than 2.5Moz of gold - and a further eight targets could contain another 2.0Moz.

The exploration licence for 'greater Veduga' was issued in late 2002 and lasts for five years. No doubt TSG will give some time and effort exploring for other gold deposits. If viable deposits are found, the exploration licence can be

converted into a mining licence for the relevant area. With the plant at Veduga having spare capacity once the initial open pit is exhausted, further resources would clearly add to the value of the project and TSG.

Financials

TSG had approximately US$4M cash on hand before the IPO and AIM listing in November 2003, which raised a further £16M (or US$26M) net of expenses. The capital spending to develop the three operations at Veduga, Asacha and Rodnikova is as follows:

Exhibit 32. Capital spending at Veduga, Asacha and Rodnikova

Veduga:	US$94M for the initial open pit mine and gold recovery plant.
Asacha:	US$54M for the open pit mine and gold recovery plant.
Rodnikova:	US$2M for open pit mine only.

Source: 3C

This is a total of US$150M, though this is subject to confirmation or adjustment in the Veduga BFS. With approximately US$25M in the bank at the end of 2003, TSG will need to raise a further US$125M or so in equity funding / debt. If we assume that bank loans will cover 70% of the capital spending, or around US$105M, then TSG will need to raise a further US$20-25M in equity.

The IPO was priced at £1.50 per share, equivalent at that time to approximately US$2.50/share. The share price is currently around £1.25 per share, but with the weaker US$ this equates to approximately US$2.25/share.

If we assume a price marginally above the IPO in any future fund raising, then TSG will need to issue around 10M shares to raise the required US$25M in equity funding. With 28.6M shares in issue after the IPO, this will take the issued shares to approximately 39M, implying approximately 25% dilution. This is not unreasonable, and indeed was forecast in the placing documents in November so should be no surprise to the market.

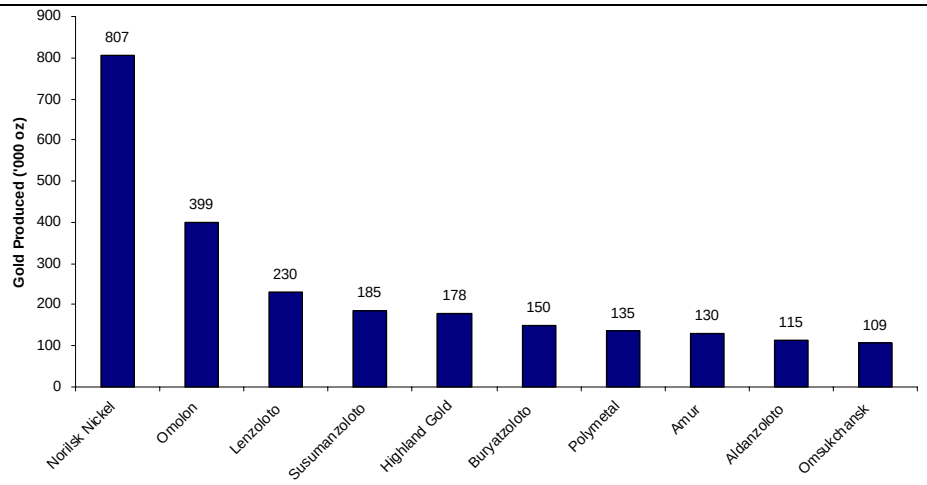
The planned gold production rate of approximately 275koz per annum by 2007 will put TSG in the ranks of the mid-tier gold producers. This is a strong growth curve for a company that was only formed in 2000.

The key point for the company, however, is that it has a strong position in two of Russia's most prospective gold 'camps', Krasnoyarsk and Kamchatka. Its strategy is to develop the underlying gold mining operations (Asacha and Veduga) while at the same time working to add resources / reserves in the surrounding areas, which can then be exploited quickly and cheaply using the already developed infrastructure. To this extent, even the proposed strong gold production profile may understate the growth potential.

Russian gold mining companies

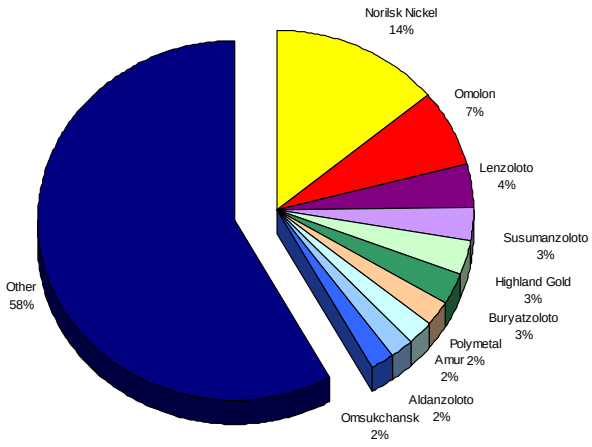
The following paragraphs give brief details of the major Russian owned gold mining companies (apart from Norilsk, which we have included in more detail elsewhere). There are more than 600 Russian gold mining companies, but the following are those that rank among the top ten gold producers in the country.

Exhibit 33. The top ten Russian gold producers in 2002



Source: 3C

Exhibit 34. The top ten Russian gold producers as a % of the Russian total in 2002



Source: 3C

Norilsk Nickel now owns 50.5% of Lenzoloto's issued shares, and has 65.9% of the voting shares.

Lenzoloto

Lenzoloto was the third largest gold producer in Russia in 2002, with production of 7.3t (230koz). Lenzoloto's operations are located in the Irkutsk region of Russia. The current mining is all from placer deposits on the Lena River, which have proven reserves (to Russian standards) of approximately 100t (3.2Moz). The company also owns some hard rock deposits in the region, where exploration has delineated reserves totalling a further 100t (3.2Moz) of gold.

Placer mining has been carried out on the Lena River for the past 200 years – it seems likely, therefore, that further resources will be found that allow this mining to continue beyond the presently proven 10 years' or so of life. In addition, development of the hard rock resources could add production or extend the life.

Norilsk Nickel now owns 50.5% of Lenzoloto's issued shares, and has 65.9% of the voting shares. Norilsk bought an initial 5.6% of Lenzoloto from the Irkutsk administration in early 2003, and purchased another 44.9% through auction in late 2003.

Lenzoloto was partly sold off by the state in the early 1990s, when it also had an understanding that it could develop the nearby, giant Sukhoi Log deposit, with resources of around 40Moz of gold. Lenzoloto agreed a joint venture with Star Mining of Australia and JCI of South Africa to develop Sukhoi Log, but the license was arbitrarily revoked in 1997. The license to develop Sukhoi Log is now expected to be put up for tender later this year.

The infrastructure within the Lenzoloto operations – roads, power plant, power lines, housing, etc. – is still regarded as key to the development of Sukhoi Log. Control of these assets could save around US$300M in capital costs on the development of Sukhoi log – which seems to be a major part of the strategy behind Norilsk's acquisition of Lenzoloto.

Susumanzoloto

The Susuman mining complex is based in Magadan and has been in operation for more than 60 years. The company produces gold from placer operations, with production in 2002 of some 5.8t (185koz). The company has total proven reserves of around 100t (3Moz) of gold.

In early 2003, Susumanzoloto, Shkolnoe (a part of the Susumanzoloto group we believe) and Peter Hambro Mining ('PHM') formed the 'Omchak' joint venture. Susumanzoloto contributed its 76% holding of the Berelekh Mining Complex, with alluvial production of 65koz per annum; Shkolnoe contributed its 89% holding in the Nel'kobazoloto Mining Company, with hard-rock gold production of around 30koz per annum; and PHM contributed US$7.2M in cash. The strategic intention of the partners was to use the JV to bid in the auction for the Matrosov mine. In the event, Norilsk Nickel won the Matrosov auction. It remains to be seen what developments may be achieved with the US$7M cash in the JV.

Although Susumanzoloto is a sizeable mining operation, the valuation of its alluvial mining operations implied by the Omchak JV deal is clearly low. On a pro-rata basis, the 185koz of alluvial production in 2002 is valued at just under US$20M.

Polymetal

Polymetal is a conglomerate with interests in thirteen subsidiary companies, including seven mining companies with seventeen mining / exploration licences spread across Russia. The company's total reserves, in Russian C1+C2 categories, are 205t (6.6Moz) of gold and 22,417t (721Moz) of silver. Total production in 2003 was 4.5t (145koz) of gold and 413t (13.3Moz) of silver, equivalent to approximately 350koz of gold. This ranked Polymetal as Russia's largest silver producer (and No. 10 in the world) and among the top 10 Russian gold producers.

Polymetal has invested more than US$250M in mine development and exploration in the past five years. Production is expected to increase in 2004 with the start-up of recently completed expansions at a number of mines, including the Dukat silver deposit in the Magadan region, the Khakanja gold / silver deposit in the Khabarovsk region, and the Vorontsovskoye gold deposit in the Sverdlovsk region. Gold production in 2004 is expected to be around 7.5t (250koz) and silver around 650t (21Moz) – with even more silver in the coming years as Dukat gets up to full production of 500t per annum. This will push Polymetal into third or fourth place among Russian gold mining companies and certainly maintain its position as the top Russian silver miner.

Polymetal is ranked as Russia's largest silver producer and among the top10 Russian gold producers.

Polymetal is 100% owned by the ICT ('Investment, Construction, Technologies') Group. In the 1990s the ICT Group carried out projects in development and implementation of conversion technologies at machine-building enterprises in Russia. This work brought the founders of Polymetal into contact with mining experts who had worked for various engineering companies. The idea was born of developing a vertically integrated holding company for the production of precious metals in Russia. This would take advantage of the large undeveloped resource base in the country and also tap into the technical know-how of experts in mining and processing. To this end, the 'Polymetal Inter-Regional Research and Production Association open joint stock company' was founded in 1998 in Saint-Petersburg.

Artel Staratelei Amur

AS Amur has a long history of mining as an artel, operating in the Khabarovsk region of Russia. The company produces gold from a number of placer deposits, and platinum / gold from the Konder deposit that has a grade of around 3g/t Au+Pt. AS Amur produced approximately 4t (130koz) of gold in 2002 and platinum production is estimated to have been around 2-3t (70-100koz).

Aldanzoloto

Aldanzoloto was founded in 1924 and produces gold from the Kuranakh gold fields in southern Yakutia (Republic of Sakha). In the past 80 years the company has mined over 600t (19.5Moz) of gold, of which just over 60% was from placer deposits and the balance from hard-rock mining.

The company not only mines gold, but adds value by producing gold and diamond jewellery.

Aldanzoloto has licenses over 12 separate gold deposits in the Kuranakh region, with total resources estimated at 83Mt grading 1.8g/t for some 147t (4.7Moz) of gold. Production in 2002 totalled just 3.6t (115koz) of gold – which clearly has room to increase based on the resources. The company not only mines gold, but adds value by producing gold and diamond jewellery.

Aldanzoloto listed on the RTS Board in February 2004. The company has 109M shares outstanding, giving a market capital of some US$16M at the mid-price of US$0.15/share. The shares are held 31% by Komdragmet (Yakutia), 10% by the government of the Aldan district, and the balance by investors.

The legal framework for mining in Russia

Mineral Resources laws

The laws governing mineral resources (referred to as 'Subsoil Resources' in Russian law) are complex and involve both the federal and local levels of government.

The main legislation is contained in the Russian "Federal Act on Subsoil Resources", which was originally passed in 1991 then updated in 1995. Some additional laws are contained in acts passed on the back of the Federal Act on Subsoil Resources, such as the Federal Act on Production Sharing Agreements and the Federal Act on Precious Metals and Gem Stones.

Power in Russia devolves down from the Federal level (the President and the Duma) to the local governments of the oblasts, krais and autonomous republics (that are referred to as 'subjects' of the Russian Federation in legal terms). Under the Russian Constitution, any matters relating to ownership and use of subsoil resources come under the 'joint jurisdiction' of the Russian Federation and its 'subjects'. This can lead to some tension and uncertainty, given that the President is from time to time at odds with the Duma, and that the individual regions may want a greater share of the power over (and income from) any mining projects.

Although the Federal Act on Subsoil Resources lays down rules for the division of power and responsibility over mineral resources and mining, between the Russian Federation and its 'subjects', these rules are only applicable on the territory of the 'subjects' until the Federation and the 'subjects' have signed a treaty dividing such powers and responsibilities. It is possible, therefore, that in future some of the 'subjects' (particularly the autonomous republics) will opt out of the present subsoil resources legislation. This may leave the legal position of some mining projects open to change.

The ownership of all mineral resources within the Russian Federation resides with the State. As such, the rights to the mineral resources cannot be sold or used a collateral for loans. The rights can, however, be transferred from one owner to another, so long as the new owner meets the requirements of the Federal laws.

The ownership of all mineral resources within the Russian Federation resides with the State.

Mineral Resources allotments and licenses

Rights over subsoil resources may be granted for a number of reasons, including:

- Scientific research and other studies;
- Construction of underground facilities unrelated to mineral resources;
- Regional geological exploration;
- Geological exploration and appraisal of mineral deposits;
- Mining and production of minerals.

The latter three uses are those of interest to the mining community. The first step to gaining rights over mineral resources is the granting of an 'allotment', which defines the boundaries in which work may be carried out. Factors taken

into consideration in setting the boundaries include the size of any mineral deposit, together with the need for other working areas for plant and safety boundaries for blasting operations. In the case of an allotment for exploration, the area may cover a single known deposit or a much larger zone of possible interest for grassroots exploration. In any event, the detailed plans of the boundaries for the allotment will ultimately form part of the minerals license.

The period of use for any mineral resources may be limited according to the type of work involved. In general, the periods are as follows:

Exhibit 35. The period of use for mineral resources

For geological exploration	5 years
For mineral extraction	20 years
For both exploration and extraction	25 years

Source: 3C

The period may be less if it is planned to work out the deposit in much less than 20 years, or it may be more if the life of the mine is considerably longer.

Once an allotment has been defined, the right to use the subsoil resources is granted as a special government permit in the form of a license. The license will certify the right of the holder to use subsoil resources within the specified boundaries of the allotment, for specified purposes during a limited period – subject also to the overall terms and conditions of Federal laws.

Licenses over subsoil resources are approved and issued by the Ministry of Natural Resources. There are two processes by which the licenses are issued:

The most common route by which Western companies have so far obtained licenses in Russia is by tender or auction.

- For deposits that have been proved up to the reserves category (*i.e.* with resources in the Russian A, B, C1 or C2 categories) the license must be offered by tender or auction.
- For deposits with only resources (*i.e.* with resources in the Russian P1, P2 or P3 categories) the license may be issued by direct application. This also applies for grassroots, regional geological exploration with no resources yet defined.

The most common route by which Western companies have so far obtained licenses in Russia is by tender or auction, for deposits with existing “reserves” under Russian categories. The tender process and the auction process are fundamentally different, as described below.

The tender process

Tenders are publicly announced and interested parties are invited to apply for consideration. The application requires basic data on the bidder, including location of principal business, background on directors / managers, financial and business partners, information on the company’s technical and financial abilities, any former activities, and finally the legal address. A nominal fee is required for applications.

The applicants are scrutinised by the Ministry of Natural Resources and if accepted the potential bidder receives the available geological data on the property together with the terms and conditions relating to the tender.

The tender will require a 'scoping' study, including plans for development with mining and processing methods, production rates, a construction schedule and financing proposals. An initial environmental impact study is also required. Finally, a social development plan for the project and any local communities is required.

The tenders are reviewed by a panel of experts, who consider not only the monetary value of the bid but also the social / economic benefits that the different plans offer (e.g. development of housing, schools, roads, and other communal facilities).

Payment terms for the winning tender will vary, but often are structured to include a first instalment paid within one month of the license being registered with the balance paid in stages over the planned life of the mine.

The auction process

The auction process is generally simpler as it is driven more by the absolute level of cash offered, usually to be paid immediately on winning the license or within a limited period thereafter. There is not as much emphasis placed on full plans for the mine development as it is assumed that if several tens of millions of dollars are paid, the winning bidder will want to move to development as soon as possible in order to generate a return on their investment.

The Federal government generally uses the auction process for the larger, better explored deposits held by the State. It is not always popular with the regional administrations, however, as they may prefer to see more guaranteed social development included in the package. Such disagreements can lead to delays in the issuing of licenses and the whole development process.

Open or closed tenders / auctions

Both the tender and auction processes are described as either 'open' or 'closed'.

- Closed tenders and auctions are only available to Russian registered companies – though this can include Russian companies that are then wholly owned by Western companies.
- Open tenders and auctions are available to both Russian registered companies and foreign registered companies – though foreign companies are usually limited to a maximum of 49% direct interest in the license.

In practice, therefore, there may be little difference between 'open' or 'closed' tenders and auctions so far as Western companies are concerned. Most of the Western companies operating in Russia today do so through Russian registered subsidiaries, in which the Western company generally has the majority share but with some Russian partners. This local ownership / involvement is important as it helps to improve relationships with the Russian authorities, at local, regional and Federal levels. Even where the Western company has 100% ownership, or close thereto, the operations are generally staffed by a high percentage of Russians at all levels, including management at head office and on the board.

Product ownership and exports

The Federal Act on Precious Metals and Gem Stones was passed in 1998 and made some important additions to the overall Federal Act on Mineral Resources. The new law gave ownership of all precious metals and gems produced in Russia to the license holder, rather than the State (i.e. the State owns the mineral resources but the license holder owns the finished product). This was clearly an important step, though the sale of the production was still not simple.

In 2001, Presidential decree 742 went a step further and allowed the free export of precious metals and gems by the license holder. In addition, the 5% export tax on gold was removed.

Russian mining companies are on the same footing as Western operations, in so far as sales go.

These two moves put Russian mining companies on the same footing as Western operations, in so far as sales go, with the freedom to sell all production either within Russia or abroad at the best achievable market prices.

Mining taxation

The tax law in Russia has also been changing in the past few years, generally for the better. The corporate tax rate on profits was lowered to 24% from 35% at the start of 2002, a major reduction. The revenue from this tax is divided between the Federal government (7.5%), the regional government (14.5%) and the local government (2%).

There are still a number of other local / regional taxes and an overall royalty of 6% is charged. The latter is regarded as the 'rent' for the use of the State owned mineral resources.

The table below summarises the mining tax base in Russia. Overall, despite the royalty and other sundry additional taxes, the low corporate rate of tax means that the overall tax payable is comparable with that of other major mining countries, such as the USA, Australia and Canada. South Africa is more of a special case due to its sliding scale of tax, though a royalty payment is soon to be introduced there.

Exhibit 36. Russian mining taxes

Tax	Based on	Rate
Taxes in production costs		
Mining royalty	Value of sales	6%
Social tax, accident and diseases insurance	Wages paid	38.50%
Transport tax	Engine capacity	Rbl 5/hp p.a., max 2% of sales
Regional / local taxes		
Security costs	Based on workforce x minimum wage rates	Max 2% of sales
Duties for pollution	Level of emissions	Max 2% of sales
Assets tax	Value of assets	2% per annum
Profit taxes		
Corporate tax	Net profit on the P&L, after local taxes	24%

Source: Russian tax regulations

Russian vs. Western resources classification

Mineral resources / ore reserves in the West

Over the past 10 years or so a great deal of effort has been put into trying to standardise Western ore reporting methodology. The major mining countries, including Australia, Canada, South Africa and the USA, each had their own particular codes of practice, laid down by their own technical institutes. These had various idiosyncrasies, however, and were not strictly comparable. This gave problems when companies were listed in one country, but had exploration / mining projects in another country, which may operate under a different code.

The Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia (known as 'JORC') has been the leader in the standardisation process. The JORC code was first published in 1988 with the latest version being published in 1999. This code has formed the basis of most other countries' codes and as such has largely been as accepted as a *de facto* Western standard.

The definitions (in abbreviated form) of the various classes of mineralisation under the JORC code are as follows:

Mineral Resources:

A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form and quantity that there are reasonable prospects for eventual economic extraction.

This can be further broken down, in order of increasing geological confidence, as follows:

- An '*Inferred Mineral Resource*' is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed, but not verified, geological and / or grade continuity.
- 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. It is based on exploration, sampling and testing information from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough for continuity to be assumed.
- 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 from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and / or grade continuity.

Applying mining parameters to the Mineral Resources then derives Ore Reserves.

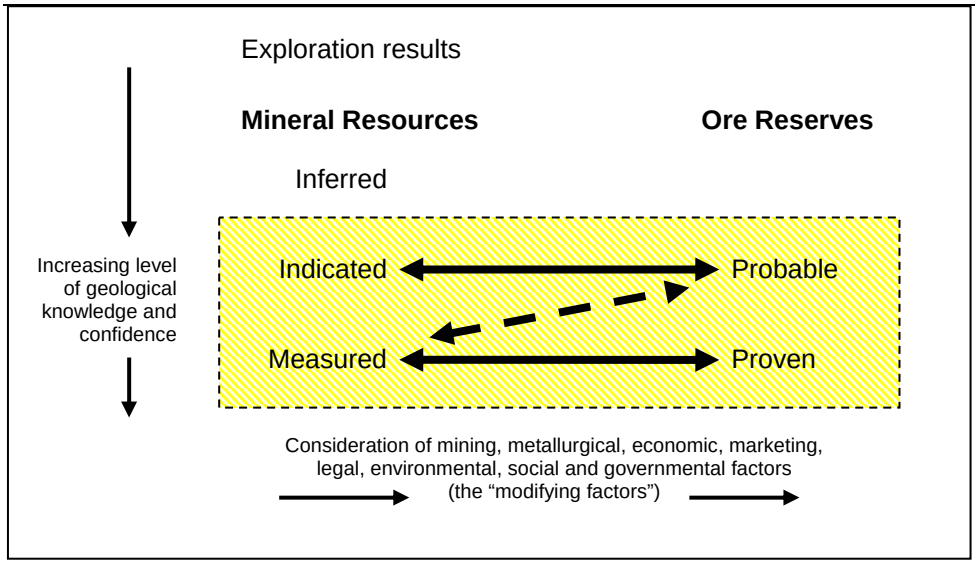
Ore Reserves

An 'Ore Reserve' is the economically mineable part of a Measured or Indicated Mineral Resource. It includes diluting materials and allowances for losses that may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include 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 could reasonably be justified.

The Ore Reserve can again be broken down, into a '*Probable Ore Reserve*' that is generally derived from an Indicated Mineral Resource (but may in some circumstances be from a Measured Mineral Resource); and a '*Proved Ore Reserve*' that is derived from a Measured Mineral Resource.

The diagram below shows these relationships in simplified form.

Exhibit 37. Relationship between Exploration Results, Mineral Resources and Ore Reserves



Source: Australasian Code for Reporting of Mineral Resources and Ore Reserves

There are a number of points to note from these definitions.

- *The numbers are not exact.*

  Although resources and reserves may be stated as quite precise numbers, in terms of tonnage and grade, they are based on 'best estimates' and as such cannot be exact.

- *The boundaries between ore classes are flexible.*

  Particularly for ore resources, it is up to a qualified 'Competent Person' to decide when sufficient data is available to move ore resources from inferred to indicated, and from indicated to measured.

- *The methods of analysis are not defined*

  The JORC definitions use words such as 'appropriate' and 'estimation'. Much reliance is placed on the experience of the competent person supervising the analysis. However, the exact methodology of the analysis is not defined – and is deliberately left open to allow for developments in exploration, mining and geostatistics.

- *Reserves today may not be economic tomorrow, and vice versa.*

  A resource needs to have 'reasonable prospects' for economic extraction, which gives some latitude over the underlying commodity price assumptions. A reserve should be economic today – but with changing metal prices, mining techniques and metallurgy, what is uneconomic today may become economic in the future. A prime example was the upgrading of low-grade gold resources to reserves with the development of heap leaching. Conversely, some deposits that appeared economic with gold at US$500/oz proved to be uneconomic with gold below US$300/oz.

So Western reporting standards are becoming more tightly defined – but based on highly flexible methods for exploration and analysis, so long as these are accepted by the relevant technical bodies.

The Russian system of ore resources / reserves

In contrast to the Western system, the Russia system for delineation and classification of ore resources is far more highly structured. This is not surprising given the centrally controlled, command economy that ran under the communist system for more than 80 years.

In contrast to the Western system, the Russia system for delineation and classification of ore resources is far more highly structured.

In addition, whereas the Western system is still largely self-regulating (being based around 'competent persons'), the Russian system is defined in law and forms part of the overall regulations for mineral exploration and mining licences.

The Soviet system of ore classification was developed around 1960 and updated in 1981. The system defines seven categories of ore, divided into two main groups, dependant on the degree of exploration that has been done. The chart below summarises this breakdown.

Exhibit 38. Classification of reserves and resources in the FSU

	Mineable Reserves				Potential Resources		
	Explored			Eval-uated	Prognostic		
Economic	A	B	C1	C2	P1	P2	P3
Sub-economic							

Source: Article in Mining Engineering, March 1994, by Serguei A. Diatchkov

The broad classifications are as follows:

Mineable reserves:

These are calculated from exploration data derived within a specific area.

Mineable reserves are calculated from exploration data derived within a specific area.

Category A; This category needs comprehensive exploration, with the orebody's position, shape and structure fully delineated, together with its mineralogy. This work will be based on the highest density exploration grid, and will normally include underground exploration within the orebody.

Category B: For this category of reserves, the principal properties of the orebody must be determined, including the distribution of types of mineralisation. Any large blocks of waste or sub-economic reserves must be delineated. Exploration should be to a level that a reliable general configuration of the orebody can be derived, and a mining / processing technology can be selected.

Category C1: These reserves are based on a loose exploration grid, but the general shape and structure of the orebody must be determined. An approximate distribution of the types of mineralisation is needed to allow assessment of the potential mining / processing options. The ore tonnage is derived from estimates of strike length, dip length and average thickness of the ore body. Allowance for barren blocks may be made statistically.

Category C2: These reserves are based on an extremely loose exploration grid, with little data. The limits of the orebody are defined mainly by extrapolation within known geological structures, and from comparison with other similar deposits in the vicinity. The grade and mineral properties of the orebody are determined from core samples and comparison with similar mineral deposits in the area. As such, these reserves have only undergone preliminary evaluation and have a low level of reliability.

Potential (Prognostic) resources:

These are estimated resources, outside the area of detailed exploration, and based mainly on geophysical and geochemical data.

Potential Prognostic resources are estimated resources, outside the area of detailed exploration.

Category P1: These resources may be extensions of C2 category reserves, possibly down-dip or along strike, and are determined indirectly by extrapolating from similar known mineral deposits in the area.

Category P2: These are possible mineral deposits, based on geophysical and geochemical data, in regions known to host such mineral deposits. The size and mineral composition are estimated by comparison with similar structures in the area.

Category P3: These resources rely on theoretical definitions of a 'favourable geological environment' and may be derived from similar deposits in the broad geological region.

Economic or sub-economic?

The Soviet system does not take full account of economics in deriving the reserves in Categories A, B, C1 and C2 (and applies no economics to 'Prognostic' resources). However, the reserves are split into economic and sub-economic classes. Reserves may be defined as sub-economic for a number of reasons, including:

- The orebody is too small or too narrow to mine.
- The mineral product would be too low grade, or contain high levels of contaminants.
- The geographical setting is unfavourable.
- Mining / processing costs would be too high.

These cover most of the reasons why an ore deposit would be regarded as uneconomic in the West – with the additional proviso of the capital cost being too high in relation to future profits. It is therefore reasonable to assume that most or all of the resources / reserves classed as economic under the Soviet system would also be economic under Western methods.

It is reasonable to assume that most or all of the resources / reserves classed as economic under the Soviet system would also be economic under Western methods.

Orebody classifications

The classification of 'Mineable Reserves' under the Soviet system is based on the level of exploration and ore body definition carried out, but the amount of exploration required to meet the criteria will vary depending on the shape of the orebody, its geologic structure and the mineral complexity. The Soviet system therefore groups orebodies according to these categories as follows:

Grouping by geologic structure / mineral complexity:

Group I: Simple non-disseminated deposits, of uniform thickness and continuous grade.

Group II: Deposits with complex geology, including irregular thickness, faulting, or uneven ore grade.

Group III: Highly complex geology with significant variation in thickness, very uneven grade distribution, or faulting.

Group IV: Extremely complex geology, with drastic variations in thickness and grade, or intensive faulting.

Grouping by shape of the orebody:

Group 1: Layers, beds or seams in large mineral deposits (e.g. coal, dimension stone). Explore by surface drilling.

Group 2: Stockworks or large massive deposits (e.g. coal, ferrous, base and precious metals). Explore by surface drilling, some underground access.

Group 3: Veins and lenses in small or intermediate deposits (e.g. ferrous and base metals, precious metals). Explore by surface drilling, underground tunnelling, and then derive vertical and horizontal profiles.

Group 4: Pipes and branching veins in small or intermediate deposits (e.g. base and precious metals, diamonds). Explore through surface drilling, underground tunnelling and drilling, with vertical and horizontal profiles.

Group 5: Small, isolated lenses and veins (e.g. precious metals, diamonds). Explore through a network of underground tunnels / shafts.

Calculation of Reserves

Starting at the exploration stage, drill grids are specified for different types of deposit and for the different categories of resource. From this data, the drill results are first analysed in sections, then straightforward interpolation between

sections (on a prismatic or pyramidal basis) is applied to generate the reserve numbers. The system of calculation is laid down for each type of deposit – as is the cut-off grade to be used.

It should be noted that the underlying methodology and major points such as cut-off grades have been in use since the 1960s – and in most cases are unchanged. The Russian system has therefore not yet embraced the more advanced techniques of geostatistics that are being used in the West, and in many cases the cut-off grades may not be truly applicable to modern mining techniques (for example, low grade ore, which may be amenable to low-cost heap leaching, is usually ignored under the Russian system).

Looking at gold deposits in particular, most will fall in Groups II, III or IV, while the orebody shapes will likely be Groups 2, 3, or 4 (possibly also 5, but these would be small). Even detailed exploration of such orebodies is unlikely to give any reserves in Category A. If the orebody is in Group II, then underground exploration on a grid 80 metres by 40 metres may derive some reserves in Category B. With orebodies in Group II or Group IV, however, even more detailed underground exploration will only derive reserves in Category C1. For orebodies in Group II or III, borehole drilling can derive reserves in Category C1, but this will not be the case for Group IV.

In practice, therefore, Category A and B ore reserves are usually only found in operating mines where full underground access allows detailed exploration on a close grid pattern. Gold exploration properties will usually only report Category C1 and C2 reserves, plus ‘Prognostic’ resources.

Gold exploration properties will usually only report Category C1 and C2 reserves, plus ‘Prognostic’ resources.

Mining licences and reserves

Once a deposit is considered to be ready for mining, an official reserve is calculated that becomes part of the mining licence. Under the terms of the licence, the official reserve is classed as ‘balance ore’ and is reduced each year according to the annual production from the mine. The company will be charged royalties based on the official reserves – and these must be fully extracted, and the full royalties therefore paid, over the life of the mine. If this target is not met for some reason, penalties may be payable.

There is provision for the mining of ‘out-of-balance’ ore, which is generally low-grade ore that can be mined and boosts production. A lower rate of royalty is usually paid on ‘out-of-balance’ ore and if there is a shortfall on the ‘balance ore’ it may be possible to offset some or all of that with ‘out-of-balance’ ore and so avoid penalties for failing to meet the terms of the mining licence.

Due to the linking of the estimated ore reserves to actual payments of royalties over a mine’s life, there is a natural tendency for Russian geologists to be conservative in their estimations. Not only would an over-estimate lead to paying higher than necessary royalties, the geologist was likely to find himself in trouble. Better, therefore, to err on the side of caution.

There is a natural tendency for Russian geologists to be conservative in their estimations.

Russian vs. Western ore definitions

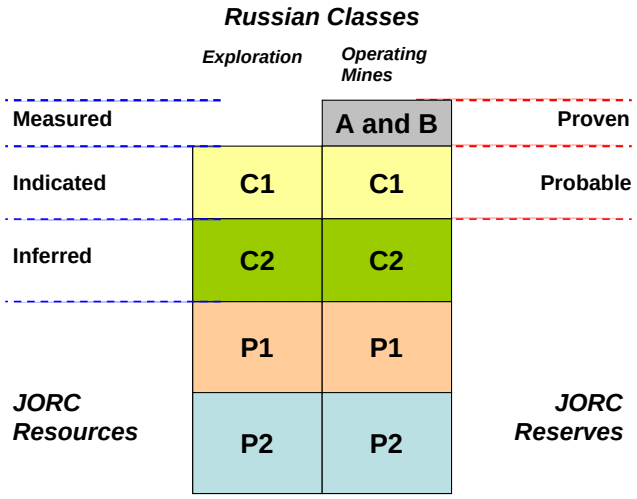
From the above comments it should be clear that there is no direct, simple translation of Russian defined ‘resources’ / ‘reserves’ into equivalent Mineral Resources / Ore Reserves under Western (JORC) standards.

In broad terms, Russian Categories A and B 'Reserves' are equivalent to Measured Resources or Proven Reserves under JORC standards; Russian Category C1 reserves are equivalent to Indicated Resources or Probable Reserves; and Russian Category C2 reserves are equivalent to Inferred Resources. However, it should be noted that the same level of economic parameters have not been applied to the Russian 'reserves' as would be the case for Western defined Proven and Probable Reserves, so strict conversion is difficult.

Since all the Russian classes of 'Prognostic' Resources are based on extrapolation or geophysical / geochemical data, they have no equivalent in the West under JORC standards. The closest equivalents are 'Hypothetical Resources' under the US Bureau of Mines and US Geological Survey definitions for Russian P1 and P2; and 'Speculative Resources' under the same definitions for Russian P3.

The approximate conversion is shown graphically in the diagram below.

Exhibit 39. Russian Resources vs. JORC Mineral Resources / Ore Reserves



Source: 3C estimates

However, to fully define the resources in any Russian deposit under Western standards will require a major amount of work, involving building a computerised geological database from the existing Russian exploration data; analysing this data using Western geostatistical techniques; and then, in order to derive Ore Reserves, applying economic and mining factors.

Building a geological database from the existing Russian data is often not as simple as it sounds. Although copious records are generally kept, some basic data is often missing. For example, data that has been used to build the official ('balance') ore reserve will only include assays above the official cut-off grade as these are the only ones that have been used to define the reserve. Assays below the cut-off grade, and hence outside the boundary of the ore reserve, may still be found in records at the local geological institute or regional exploration office, but this will take time and effort.

Another problem that arises is a lack of co-ordinates and downhole survey results for the drillholes. This is a hold over from the Soviet regime, as full grid co-ordinates remain secret in Russia, and even local mine plans with co-ordinates or vertical scale bars are difficult to find. Such a lack of basic data increases the time and work needed to re-assess and calculate resources / reserves using Western methodology and standards.

The current situation

Western companies operating in Russia have so far taken a mixed approach to their reporting of resources and reserves, though most are now using (or planning to use) Western, JORC based statistics.

This should not be seen as denigrating the work done by Russian geologists and the results that have been derived for gold deposits under the Russian system. Indeed, the level of work completed on many of the Russian deposits is often higher than would be carried out on a similar deposit in the West – mainly as Western mining companies do not have the luxury of almost unlimited time and funds.

The level of work completed on many of the Russian deposits is often higher than would be carried out on a similar deposit in the West.

However, with Western companies by definition being listed on the major Western stock exchanges and selling shares to Western investors, they need to be able to compare their underlying resources and reserves to other Western companies operating in the historic gold mining regions of North America, South Africa and Australia.

The gold market in 2003

Review of 2003 and outlook

In February 2003, 3C published a major review of the gold markets, where we highlighted seven key points that justified a more bullish outlook. So what has changed? In broad terms, very little...

In our view, the key issues remain the US dollar and the fundamentals of supply and demand. Though the market price appears to have been, and continues to be, driven by the weak US$ and strong "implied net new" investment demand, notably through hedging activity, other fabrication demand on the whole weakened.

Lets start from the points we highlighted 12 months ago and consider the trend since then, elaborating with some additional comments:

- **There has been a significant change in the dynamics of the gold market.** A decline in the US dollar, decreasing mine supply, a reduction in hedging and a move to closing out hedge books has, despite weaker demand, resulted in a significant change in the dynamics of the gold market.

  This trend continued during 2003, but the key driver to price rises was implied investment demand - that should continue to be a key factor, though an improvement in physical demand should also materialise.

- **Dollar weakness (1).** A weak dollar has made gold attractive in other currencies such as the Euro, thereby fuelling an increase in demand from elsewhere in the globe.

  US$ weakness and Euro strength was a key feature, but demand was dominated by the investment funds for "paper products". With such dominance by one factor, the risk of bouts of profit taking will undoubtedly cause "pull-backs" in the price, but the trend should remain positive. Progressively, fundamental demand from other segments such as jewellery demand should recover as the market adjusts and grows in confidence to the new price environment.

- **Dollar weakness (2).** A relatively high gold price has led to gold mining companies generating stronger earnings and cash flows, however with a weaker US dollar mine cash operating costs in US dollar terms have also been rising, hence part of the increased margin has not been captured.

  The appreciation of currencies against the dollar created a significant shift in the US$ cost profile of companies, with some significant regional disparities. "Other" countries such as Russia were among the real net gainers of a rising gold price, while South Africa has been a net loser as margins were severely squeezed by the stronger Rand.

- **Producer de-hedging.** The decline in producer hedging in 2002 was probably the biggest single factor influencing price trends during 2002. Higher spot prices provided the primary impetus for companies to unwind forward gold hedging positions.

  De-hedging continued in 2003, albeit more muted, and offset by some companies, such as Newcrest in Australia, having to hedge production as part of the financing requirements for mine developments.

- **Poor equity market performance.** Investment demand has been an important driver of prices in 2002, led by geo-political issues and a desire to hedge against weakness in the equity and bond markets.

  Investment demand for gold rose strongly in 2003, mirroring the rise in the gold price. Notably, it was investment through the Comex and OTC markets that dominated implied net investment of 652t in 2003. Profit taking in 1Q 2004, bringing the gold price back into the $380-400/oz range, and a strengthening of the dollar, has provided a renewed platform for the gold price to continue its upward growth.

Investment demand for gold rose strongly in 2003.

- **Supply concerns.** Total supply (in 2002) from all sources was (*a revised*) 3,984t, up 68t over 2001 and followed a fall of 116t in 2001, taking the cumulative reduction in supply since 1999 to 181t.

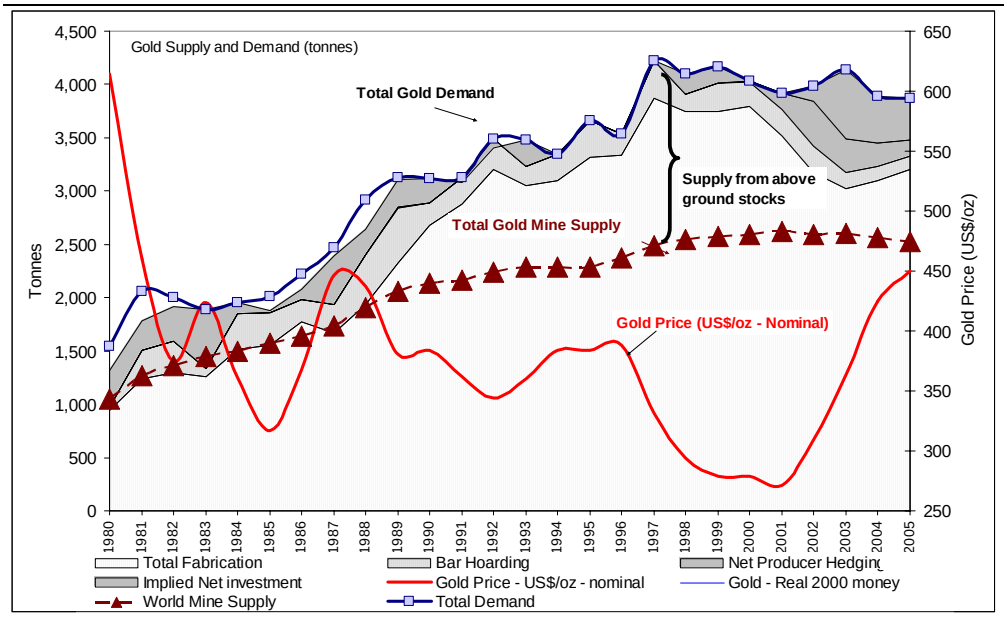
  Mine supply constraints continued in many areas and together with de-hedging, albeit at a lower rate, should continue to keep supply growth negligible. Growth in Russia and the FSU States has not noticeably offset declines elsewhere through mine closures due to age or declining economic viability (as for example in Southern Africa).

- **Decline in demand.** Global fabrication demand was particularly weak across all geographic regions during 2002, reflecting particular geographic factors and a weak global economy.

  Physical demand (jewellery, fabrication, bar hoarding) was weak to very weak in 2003, while de-hedging also fell 27%. Without the 652t of implied net investment demand by Funds, the decline would have been even more significant, and perhaps a big negative on market sentiment. Recovery in fabrication demand should therefore provide an important stimulus to the next stage of price appreciation. However, given quite variable currency appreciation (to the dollar), this will likely result in stronger growth in one quarter over another when gold prices are relatively cheaper in the respective local currencies (e.g. historically important demand regions such as India and the Far- and Middle-East).

Fabrication demand (jewellery, fabrication, bar hoarding) was weak to very weak in 2003.

Exhibit 40. Historical Gold Supply, Demand and Price Trends, 1980 – 2005(f)



Source: GFMS

Currencies, particularly the US dollar and the Euro, remain critical drivers of the future gold price outlook, but higher prices have also stymied fundamental demand, especially in the jewellery markets.

Currencies, particularly the US dollar and the Euro, remain critical drivers of the future gold price outlook.

The US dollar remains perhaps by far the strongest factor influencing market sentiment towards gold, but it is not the only one. With progressive weakness in the US Dollar, the Euro has appreciated strongly and gold's price performance has tended to mirror that trend.

The rally in the gold price has been quite dramatic in the past couple of years. From a recent low of US$256/oz in April 2001, the gold price rose to a 15-year peak of US$428/oz on 12 January 2004. Since then it has traded mainly in the range US$395 - 415/oz and averaged US$407/oz up to March 2004.

In calendar 2003 the gold price averaged US$363/oz, up 17% from US$310/oz in 2002. Certainly, much of the increase has been driven by fund buying, which returned to the physical gold market due to poor global equity markets and the pervasive low interest rate environment.

However, gold's price performance in other currencies from the start of 2003 through to the end of January 2004 was somewhat disappointing: down 2.3% in Euros, up 2.6% in Sterling, and up 2.7% in Yen.

Exhibit 41. Gold price in different currencies, 2000 - 2004

Gold Price / Ounce - Annual Average, High and Low in various Currencies

Year	High US$	A$	C$	Rand	Rouble	Yen	SFr	Euro	Sing$
2000	**315**	522	457	2,098	**8,811**	34,272	513	324	533
2001	**293**	600	463	3,724	**8,523**	36,692	505	330	524
2002	**350**	622	549	3,487	**10,987**	41,975	514	351	607
2003	**416**	644	578	3,329	**12,763**	45,636	531	350	709
2004	**426**	553	545	2,990	**12,388**	45,396	522	334	721
	Low								
	US$	**A$**	**C$**	**Rand**	**Rouble**	**Yen**	**SFr**	**Euro**	**Sing$**
2000	**264**	426	399	1,700	**7,384**	28,365	434	271	459
2001	**256**	469	391	1,993	**7,447**	29,602	425	277	446
2002	**278**	532	444	2,877	**8,726**	36,111	445	307	511
2003	**323**	513	465	2,388	**9,910**	38,727	449	300	576
2004	**393**	512	524	2,672	**11,222**	41,833	494	315	670
	Average								
	US$	**A$**	**C$**	**Rand**	**Rouble**	**Yen**	**SFr**	**Euro**	**Sing$**
2000	**279**	481	415	1,935	**7,803**	30,095	471	303	481
2001	**271**	525	420	2,342	**7,887**	32,976	458	303	486
2002	**311**	571	487	3,250	**9,734**	38,825	482	329	556
2003	**364**	559	509	2,388	**11,166**	42,101	489	321	634
2004	**407**	529	535	2,772	**11,673**	43,702	509	324	690

2004 data to 12 March

Year on Year Percentage Change

	Average US$	A$	C$	Rand	Rouble	Yen	SFr	Euro	Sing$
00-01	**-3%**	9%	1%	21%	**1%**	10%	-3%	0%	1%
01-02	**14%**	9%	16%	39%	**23%**	18%	5%	8%	14%
02-03	**17%**	-2%	4%	-27%	**15%**	8%	1%	-2%	14%
03-04	**12%**	-5%	5%	16%	**5%**	4%	4%	1%	9%

2004 data to 12 March

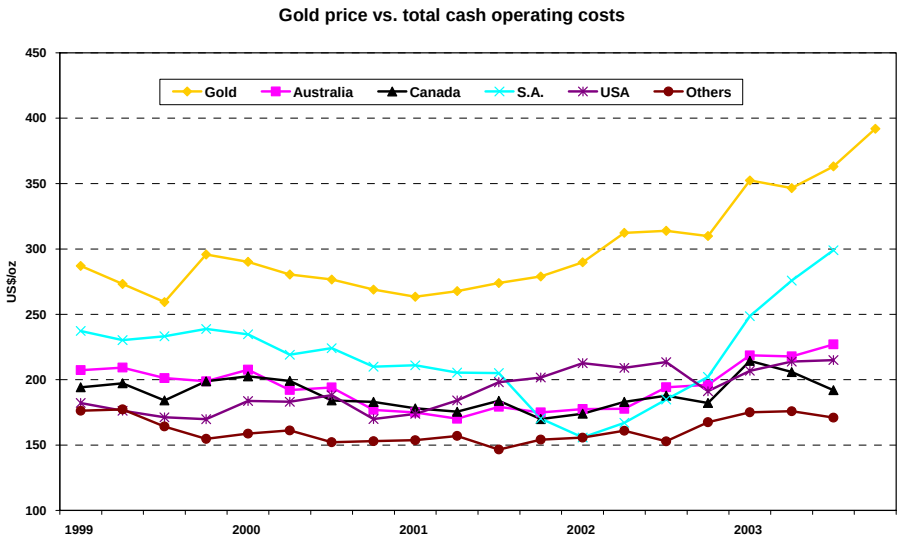
Source: Bloomberg

Production costs and trends in operating margins

The US dollar has a very significant influence on the overall profitability of mines. Indeed, with gold prices at historically low levels in 2000 and into 2001 the *strength* of the US dollar played an important role in keeping marginal cost operations in business. The *weakness* of the US dollar since then, exacerbated by the '9/11' effect, has helped to push the gold price, and operating costs, higher.

Prior to the sharp appreciation in the South African Rand during 2002 and 2003, the USA had moved from being the lowest cost producer (in 3Q 1998) to the highest (by 4Q 2001). This was a combination of the stronger US$, which reduced US$ costs in the other producing countries, and lower mine grades and higher power costs within the USA itself. Had it not been for the Rand's appreciation (and, to a lesser extent, the Australian dollar's), the USA would probably still be the most expensive region.

Exhibit 42. Historical gold price vs. cash operating costs

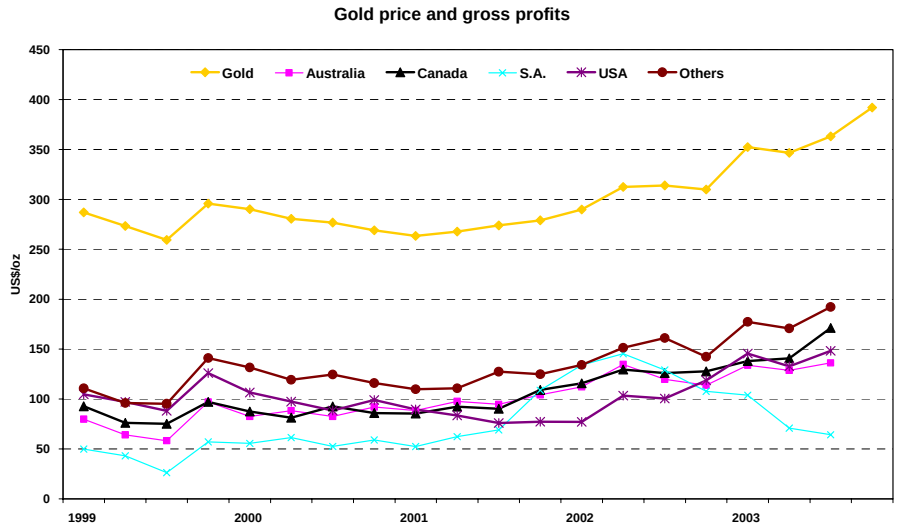


Source: GFMS, 3C estimates

Overall, 'Western World' costs were stable in the US$170-180/oz region in 2001 and most of 2002, before rising sharply from 4Q 2002. From 3Q 2002 to 3Q 2003, the average costs rose by 24%, from US$180/oz to US$223/oz.

However, over the same period the gold price rose even more in absolute terms, from US$314/oz in 3Q 2002 to US$363/oz in 3Q 2003. The average cash profits thus increased marginally, to US$140/oz in 3Q2003 from an average of US$128/oz in the full year 2002. As a percentage, however, the profit margin fell somewhat, as the gold price rose less in percentage terms than the cash costs.

Exhibit 43. Historical gold price vs. cash profits



Source: GFMS, 3C estimates

The average hides the fact that the cash profits increased strongly in 2003 for most of the major gold producers. The exceptions were South Africa, where profits fell sharply due to the strong Rand; and Australia, where profits only rose

marginally, again due to the stronger local currency. In Canada, the USA and 'Other' regions the average profits rose by almost US$50/oz from 2002 to 3Q 2003.

Of particular note (especially in the context of the theme of this report) are the "other countries", which include Russia and Asian/Far Eastern countries, where costs have remained broadly stable in 2002 and 2003.

Exhibit 44. Gold price, average cash costs and average gross profits

Year	Qtr.	Gold price	Cash costs						Gross profits					
		US$/oz	Aus. US$/oz	Can. US$/oz	S.A. US$/oz	USA US$/oz	Other US$/oz	W.W. US$/oz	Aus. US$/oz	Can. US$/oz	S.A. US$/oz	USA US$/oz	Other US$/oz	W.W. US$/oz
1999	Q1	287	207	194	237	182	**176**	202	80	93	50	105	**111**	85
	Q2	273	209	197	230	176	**177**	199	64	76	43	97	**96**	74
	Q3	259	201	184	233	171	**164**	193	58	75	26	88	**95**	66
	Q4	296	199	199	239	170	**155**	194	97	97	57	126	**141**	102
2000	Q1	290	208	203	235	184	**159**	196	82	87	55	106	**131**	94
	Q2	280	192	199	219	183	**161**	189	88	81	61	97	**119**	91
	Q3	277	194	184	224	188	**152**	189	83	93	53	89	**125**	88
	Q4	269	177	183	210	170	**153**	177	92	86	59	99	**116**	92
2001	Q1	263	175	178	211	174	**154**	177	88	85	52	90	**110**	87
	Q2	268	170	176	205	184	**157**	178	98	92	62	84	**111**	90
	Q3	274	179	184	205	198	**147**	178	95	90	69	76	**127**	96
	Q4	279	175	170	170	202	**154**	172	104	109	109	77	**125**	107
2002	Q1	290	178	174	156	213	**156**	171	112	116	134	77	**134**	119
	Q2	312	178	183	167	209	**161**	176	135	129	145	103	**151**	136
	Q3	314	194	188	185	213	**153**	180	120	126	129	100	**161**	134
	Q4	310	196	182	202	191	**167**	186	114	128	108	119	**142**	124
2003	Q1	352	219	214	249	207	**175**	210	134	138	104	146	**177**	142
	Q2	347	218	206	276	214	**176**	218	129	141	71	133	**171**	129
	Q3	363	227	192	299	215	**171**	223	136	171	64	148	**192**	140
	Q4	392												

Source: GFMS data, 3C estimates

These countries as a group are projected to have the lowest cash costs (at around US$165-175/oz) for the foreseeable future while, in a continued weakening US dollar environment, Western World average costs are projected to continue rising. "Other" countries have clearly also managed to capture most of the gain in the gold price in their profit margins, unlike South Africa where the cash profit margin has approximately halved between 1Q 2002 and 3Q 2003. Of course, arguably this also now presents an interesting investment opportunity, but it requires good judgement on the Rand's future trend to the dollar – a debate we do not wish to enter here.

Gold market fundamentals

In 2003 de-hedging fell to 310t, a drop of 27%.

Turning to the fundamentals, the market's more positive sentiment towards gold has partly been driven by the moves by producers to unwind hedge positions. The de-hedging peaked at 424t in 2002, which gave the gold price an initial boost. In 2003 de-hedging fell to 310t, a drop of 27%, but this was still a significant boost to demand (the other side of the equation). De-hedging would have been significantly higher had Newcrest in Australia not hedged over 30t as part of the financing for re-opening the Telfer mine.

However, the fundamentals of supply and demand remain precarious, with higher prices increasing scrap supply by some 13% year-on-year to 946t.

Mine supply has been broadly flat over the past five years, at an average of some 2,595t per annum. Supply in 2003 rose marginally to 2,601t but this was still down 22t from the peak of 2,623t in 2001. Mine supply is forecast to be lower in 2004, as new mine developments fail to compensate for declines in output and closures at older mines.

Central Bank sales, while subject to an expected renewed agreement, should continue to fall, and the weaker US dollar could result in some banks reviewing their policies towards gold sales.

The higher gold price impacted demand, which rose only a modest 4% in 2003, and that was almost exclusively a function of implied net investment that rose from 138t to 652t. Jewellery sales (the major segment of demand) fell by 7%, while other fabrication demand rose by 7%, as highlighted by the authoritative GFMS Gold Survey (Update II) in January 2004. Bar hoarding also fell markedly, by 38%. However, as the markets adjust to the new price level we expect total fabrication demand to steadily increase – in contrast to the underlying new mined supply.

Exhibit 45. Gold supply / demand, 1990 – 2005(f)

Tonnes	1980	1985	1990	1995	1999	2000	2001	2002	2003	2004	2005
Supply											
WW Mine Production	962	1,239	1,755	1,895	2,134	2,111	2,112	2,049	1,936	1,906	1,866
World Mine Supply	**1,052**	**1,569**	**2,132**	**2,291**	**2,574**	**2,591**	**2,623**	**2,592**	**2,601**	**2,562**	**2,524**
Of which:											
Russia	***0***	***0***	***152***	***142***	***138***	***154***	***165***	***181***	***184***	***189***	***202***
Other FSU, China	*90*	*330*	*226*	*280*	*305*	*322*	*347*	*353*	*349*	*346*	*343*
Official Sector Sales	0	0	7	167	477	479	529	559	591	354	343
Old Gold Scrap	492	319	493	631	608	609	708	834	946	974	1,004
Imputed Supply	**1,544**	**1,888**	**2,632**	**3,089**	**3,659**	**3,679**	**3,860**	**3,985**	**4,138**	**3,890**	**3,871**
Producer hedging	0	62	241	475	506	0	0	0	0	0	0
Gold loans	0	38	5	0	0	0	0	0	0	0	0
Forward sales	0	18	229	0	0	0	0	0	0	0	0
Option hedging	0	6	7	1	0	0	0	0	0	0	0
Implied Net Disinvestment	0	0	0	92	0	357	61	0	0	0	(0)
Total Supply	**1,544**	**2,012**	**3,114**	**3,657**	**4,165**	**4,036**	**3,920**	**3,984**	**4,138**	**3,890**	**3,871**
Demand											
Fabrication Demand:											
Jewellery	514	1,198	2,188	2,812	3,154	3,232	3,038	2,687	2,499	2,440	2,383
Electronics	95	116	216	204	247	285	204	209	223	280	350
Dentistry, coins, other industrial	337	243	279	298	345	274	280	274	295	374	474
Total Fabrication	**946**	**1,556**	**2,683**	**3,314**	**3,745**	**3,792**	**3,522**	**3,170**	**3,018**	**3,094**	**3,207**
Net Official Purchases	230	132	0	0	0	0	0	0	0	0	0
Bar Hoarding	23	306	207	343	266	230	248	252	158	137	119
Producer de-hedging	0	0	0	0	0	15	151	424	310	217	152
Implied Net investment	345	18	224	0	154	(1)	(1)	138	652	442	393
Total Demand	**1,544**	**2,012**	**3,114**	**3,657**	**4,165**	**4,036**	**3,920**	**3,984**	**4,138**	**3,890**	**3,871**
Gold price - US$/oz	**615**	**317**	**384**	**384**	**279**	**279**	**271**	**310**	**363**	**425**	**450**

Source: GFMS, 3C estimates

GFMS commented in its January 2004 Gold Survey update that while the market had adjusted to the new gold price reality, "the true floor for the price in the absence of buoyant investment demand is likely to be nearer $350 than the $400/oz level. This would particularly be the case were support from de-hedging to disappear and official sector sales to be sustained at the higher rate seen last year", and that "the outlook is positive on both fronts".

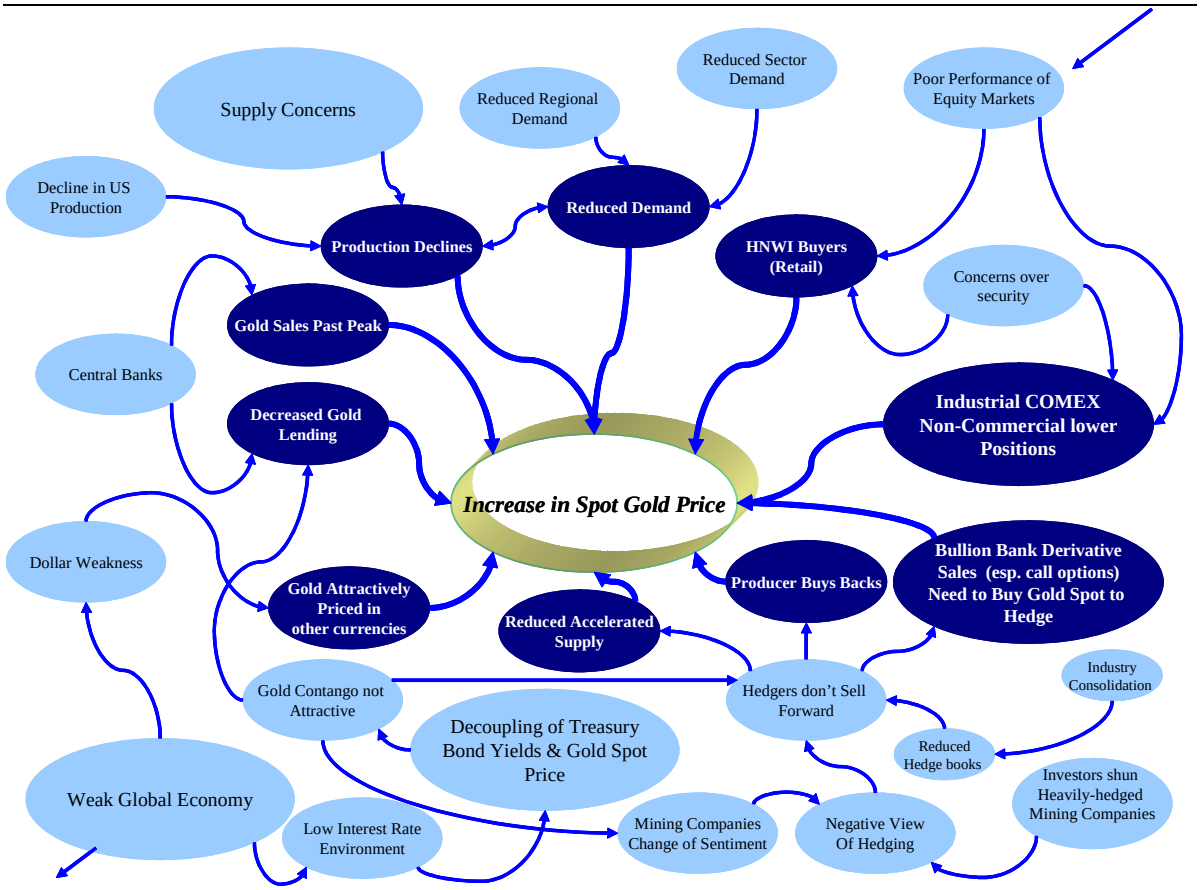
GFMS cites a number of reasons that should support gold, with which we concur:

- Continued US dollar weakness
- Ultra-low interest rates
- Disappointing stock and bond market performance
- Political tensions are unlikely to ease

These all contribute to investors looking for alternative classes of investment and "*commodities, including precious metals will feature more and more on their shopping lists*". GFMS added that at some point during 1H2004, prices should

"breach the $450 mark". Of course, investment demand will remain key to that being achievable and, in that context, gold investment being taken up by a wider investor audience. The components of the overall equation can be best summed up in the spiders-web chart shown in exhibit 11. Clearly, we continue to be positive on the outlook for gold investment in its various forms and forecast several years where the price continues to trend upwards.

Exhibit 46. Scenarios for a more bullish gold price outlook



Source: 3C