To start off, I would like to introduce Paul Burton. He is Managing Director of GFMS World Gold Limited, a subsidiary company of GFMS that Paul set up a couple of years ago. He is here to talk to you all about mine production.

**Gold Mine Production:**
**How Relevant Is It To Today’s Market?**

**Paul Burton**  
Managing Director, GFMS World Gold Ltd

I. **Introduction**
Thank you, John. Thanks very much. As John said, I am going to try to give you a feel for how relevant I think gold production is in today’s market. I cannot answer the question about how long investment is going to continue, but if it does I can tell you where the gold is going to come from.

1. **GFMS World Gold**
This is us. You might know me more from the _Alchemist_ magazine, where I write those last bits of notes about mine production every quarter, although, ironically, not in the one that is in your delegate bag, because one of my colleagues wrote that for us this time.

2. **Agenda**
Over the next 15 minutes I am going to take you through mined gold in perspective. I am going to talk about some of the mine supply economics. I am going to look at some of the short term challenges and issues we face in the gold mining industry and then I shall conclude with some remarks and observations.

3. **Quotation**
I start with this quote, which is anonymous: ‘Gold regards itself as noble, yet its father is dirt.’ Most of you are probably involved in the noble side of this industry, you see the shiny metal, but I am going to talk about the real dirty side of it today.

II. **Mined Gold in Perspective**
I know you are not interested in that many numbers, but I hope I can put the trends across to you to show you how I think gold supply is going to affect the market in the next few years.

Albert showed a slide earlier on about gold in existence, which had the same figure as you can see here. A GFMS figure for the end of 2009 says that there are about 166,000 tonnes of gold in existence above ground as we speak. Where did this come from? This is just to give you an idea of how important mining is to this industry. None came from fishing, for a start. Farming did not bring in any gold. Alchemy, down to the nearest round number, brought in zero as well.
Therefore, all that gold has come from mining over the millennia and it is very simplistic, obviously, but gold mining is why we have the industry we do today. Gold mining is that fundamental.

To look at some figures:

- Annual gold production is roughly 2,550 tonnes.
- It increases the world’s stock of gold by about 1.5% each year.
- Over the last 10 years, gold production has accounted for six times more than central bank sales and two times more than has come back into the market from scrap.

This chart shows you how much on an annual basis has been coming from mine production on the supply side. Over the last ten years or so about 63% annually came from new mined gold, with the rest coming from central bank sales and scrap. We will hear more about scrap from Jeffrey a bit later on – ‘Scrap Jeffrey Rhodes’ it says on the programme and I am wholeheartedly in support of that! This is an indication of how consistent mine production has been to the market on the supply side over the years.

Another perspective is that gold mine production since 1980 has been 65,000 tonnes, so there has been an increase in stocks over those 30 years of 65,000 tonnes. The gold mine production not consumed is zero. Every tonne of those 65,000 tonnes has been consumed by the market and that is one of the oddities of our market, that the miners produce the gold, deposit at the refinery gates and say, ‘Okay, our marketing is done, somebody is going to buy it.’ You guys from the other side say, ‘Well, there is always going to be a supply of gold. It is going to come from some mine, we do not know where, but it does not matter. It is the same shiny product we get out of the refinery, it does not really matter’. It is one of the oddities, I think, of our particular industry that we accept that somebody is going to take our gold and you guys accept that somebody is going to give you some new gold.

Gold miners have always been what I call ‘price takers’. They have always been paid at a ruling fixed price. They have never had to worry about marketing, about going valued added down the chain into jewellery or anything. There has always been a ready market for them and that has led to a number of things – certainly complacency, I think, from one point of view, but they have had limited value added opportunities or even interest, as I alluded to. Therefore, they have sought some control over their prices, certainly 10-15 years ago, by that terrible word ‘hedging’. That gave them the chance to lock in a price. It meant that they were not just relying on the market to give them a price; they could help to fix their own price, especially at a time when costs were so variable.

Of course, hedging has not gone down well over the last few years with investors. I do not know if you can see this picture of Barrick’s Goldstrike mine in Nevada, but the signpost is littered with bullet holes and that is what the investors think of Barrick’s gold hedging programme. That is why they have stopped in the last few years.

III. Mine Supply Economics

1. Changing Supply Pattern

Looking at the economics of the industry, this is the changing supply pattern since 1980. There are a couple of things I would like you to draw from this graph. Firstly, the increase in gold
production since 1980 up to a peak in 2001. Since then we have seen gold production coming off, apart from last year when there was a 7% increase from 2008 to 2009. Thus we have seen a bit of a turnaround in gold production after an eight or so year decline.

The other thing to take from this graph is how the importance of South African, US, Australian and Canadian gold has been diminished over the last few years. You can see there is a very steep downturn as the rest of the world has taken over, so the four traditional producers have lost a lot of ground. They have lost their mainstream role in production and that is very important as explorers and developers have moved around the world and we have seen particularly South Africa falling off from number one with its production becoming very deep and very expensive.

2. **Top Countries (2009)**

The top producer in the world at the moment is China, with 324 tonnes last year. That is an 88% increase over the last 10 years. Australia is the number two producer, although its production is down 25%. South Africa is now relegated to third position. The US is number four and Russia is number five, although it slipped to number six in the first half of this year with Peru overtaking it. Those are the top five producing countries and you can see the three traditional guys have all lost ground, as I mentioned earlier, whilst Russia and China have seen quite dramatic increases in production. I should add that over 60 countries are producing significant amounts of gold these days and the top 20 account for 87% of all our new mined supply.

3. **Top Companies**

Let us look at which companies are producing the most gold at the moment – and now I move to millions of ounces instead of tonnes, which is one of the peculiarities of our industry: we talk of grade in grammes per tonne, we talk of metric tonnes and then we come out with ounces at the end of it. Barrick Gold was the largest producer in the world last year; its production has gone up 100% in 10 years. In second place was Newmont Mining, the US giant. In third place was AngloGold, the South African company, but its production was down 33% over that period. Gold Fields, another South African company, came in at number four. Coming in at number five was a copper gold company, Freeport McMoRan. They have a huge copper gold mine in Grasberg in Indonesia. They are one of the largest gold miners in the world, but they are also one of the largest copper producers in the world. Those were the top five companies in the world in 2009.

4. **Costs**

Obviously, costs are critically important. What we have seen is that cash costs have increased 160% in the last 10 years. Cash margins have increased from $92 to $494/oz, which looks a very good figure, so we expect the gold miners to be making stacks of money at those levels. However, you can see the cost curve going up and that is what we call the ‘cash cost’, that is at mine cost plus royalties. It is not the best measure in the industry, but nevertheless if we look at all-in costs, which were probably $717/oz, according to one of our teams, GFMS Mine Economics, in 2009, this cut the real margin considerably. There has been a steep increase in costs over the last few years as well as the gold price moving up and a lot of it is to do with the gold price moving up, because if the gold price moves up they lower what we call their ‘cut-off grade’, which means they can mine lower grade ore to keep the life of the mine rather than mine
too much in the early years. Hence they are extending their mine life by bringing more ore into their inventory.

This is the curve from Mark Fellows and his team at GFMS Mine Economics. This is a cash cost curve in the darker colour and we have brought in all the other costs of sustaining capital, depreciation, amortisation, all the non-cash costs and whatever and that is the average figure we had in 2009 of about $717/oz. Hence you can see that in terms of today’s gold price the industry is making money. They are all making money. If you do add on further exploration costs, which are more discretionary and we saw lots of cutbacks in exploration when times were hard, if you add those on plus development capital expenditure, project capital expenditure, the all-in costs comes up just shy of $1,000/oz, so the industry is still in the black at this point in time.

5. Production Lag

The red line coming out here is the gold price and this is the production curve in slightly more detail than I showed you earlier on. You can see that with the gold price going up production has gone the other way apart from the 7% rise last year. It has taken seven or eight years of gold bull market before we have seen an increase in gold production. That is what we call the ‘production lag’. It takes so long to explore and build a mine that even if they started when the gold price began to rise some of those production units are only now coming on board.

6. Exploration Lag

This is a similar graph showing the gold mine production bar chart, but what I have overlain here this time in green in exploration spend. That is all exploration spend, I should say, it is not just gold. You can see that as the gold price started moving up, the companies felt more confident and started to invest more in exploration up until 2008, which was a terrible time and in 2009 they canned a lot of exploration and cut their budgets. However, you can see this huge increase in spending in drilling, in trying to find new deposits, but they have not been that successful and the next slide shows you why.

7. Few Major Discoveries 1950-2009

This is a graph from a consulting company in Perth and this is the number of new big deposits (over one million ounces) that have been found in the last few years. There are relatively few, so exploration has not been as successful as it has been in earlier decades.

IV. Observations

1. The Industry

Just to make some observations on this:

- There is certainly a shift in global supply patterns away from South Africa to countries such as China and Russia.
- Resources are obviously finite, but are not in danger of being exhausted in the short term.
- However, economic reserves may deteriorate because operating costs have been rising steadily, but countering that is the higher gold price.
- Exploration is not proving as successful as in previous decades.
A short term production rise is expected, but thereafter we start to see some declines in world gold production.

We are almost certainly going to see an increase in M&A activity. Indeed, we have seen it already, companies paying anything for scarce resources in the ground. They are not finding gold, so they are buying it from other people. We saw Kinross buy Red Back recently at fairly inflated levels.

2. **Production and the Market**

Some observations on production and the market:

Mine production is relatively price inelastic. I showed you the lag effect of some eight years or so and only now, in the ninth year of a bull market, is production now rising.

Certain components of supply are more price elastic – and Jeff will be talking about scrap in a minute – and can substitute easily in the short term.

The global hedge book is now very small and so has little influence on our market.

Mined gold satisfies the majority of annual demand now and it helps keep the market stable and orderly.

V. **Production Forecast**

You want to know the forecast for production. This is where we see production going over the next 3-4 years. We see an increase of about 4% up to 2012 as some of these projects come on stream. A number of projects have been mothballed for some time, but with these prices they start to work, the economics look good and they are starting to come through in the pipeline. Thereafter, we start to see a decline in gold production and out to about 2019 we see gold production coming off 13%, so there are some warning signs there. We might find new gold in these years that will come in here, but at the moment that is what we are looking at.

VI. **Mine Production Less Net Demand**

Finally, this is a very interesting slide which was put together by my colleague Paul Walker. What we have done here is look at mine production less net physical demand. You can see in this period there was a net excess of gold production which was taken up by investment and other things. In this period here, this is where jewellery came into its own and everything was taken up by jewellery. However, if you start to pull this out again now, you can see the dramatic rise that we have had in the last couple of years where investment is now taking every ounce of gold that is being mined and coming onto the market. Investment is now the biggest player in the market and that is one of the key threads of this whole conference and one of the key risk factors that we see.

That is the end of my presentation. Thank you very much for your attention.