



Impact of the Global Financial Crisis on Mining in Southern Africa



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TABLE OF CONTENTS

LIST OF ABBREVIATIONS	iv
FOREWORD	vi
EXECUTIVE SUMMARY	vii
INTRODUCTION	1
THE GLOBAL FINANCIAL CRISIS	2
The Global financial crisis and developing countries	2
Commodity price fluctuations	2
The global financial crisis and its impact on Africa	7
THE MINING INDUSTRY IN SOUTHERN AFRICA	27
Overview	27
The Impact of the global financial crisis on mining in Southern Africa	27
China–Africa trade and the global financial crisis	32
COUNTRY PROFILES	38
Overview	38
Impact on the region of the downturn in the mining sector	38
Potential social consequences of the decline in mining sector	48
Angola	30
Botswana	38
Democratic Republic of Congo (DRC)	46
Malawi	54
Namibia	61
South Africa	68
Zambia	79
Zimbabwe	88
MITIGATING AGAINST THE POTENTIAL OUTCOMES OF THE GLOBAL FINANCIAL CRISIS ON THE MINING SECTOR	99
Short-term responses (2009 to 2010)	99
Medium- to long- term responses (2011 and beyond)	101
APPENDIX A: BACKGROUND INFORMATION AND ASSUMPTIONS UNDERLYING ECONOMIC MODEL FORECASTS	103
Background	103
The Model	103
APPENDIX B: INDICES AND THEIR MEANINGS	122
END NOTES	

LIST OF ABBREVIATIONS

ASX	Australian Securities Exchange
BEE	Black Economic Empowerment
BMI	Business Monitor International
BMWU	Botswana Mine Workers Union
CEO	Chief Executive Officer
CMC	Caledonia Mining Corporation
COSATU	Congress of South African Trade Unions
CSI	Corporate Social Investment
DBCM	De Beers Consolidated Mines
Debswana	De Beers Botswana Mining
DMNR	Malawi's Department of Mines and Natural Resources
DRC	Democratic Republic of Congo
ECB	European Central Bank
EIA	Environmental Impact Assessment
EIU	The Economist Intelligence Unit
Endiama	Empresa Nacional de Diamantes de Angola
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFC	Global Financial Crisis
HCC	Hwange Colliery Company
IMF	International Monetary Fund
IOC	International Oil Companies
Implats	Impala Platinum
JSE	Johannesburg Securities Exchange
JV	Joint Venture
LNG	Liquefied Natural Gas
M&A	Mergers & Acquisitions
MMCZ	Minerals Marketing Corporation of Zimbabwe
MME	Ministry of Mines and Energy (Namibia)
NDP	National Development Plan
OECD	Organisation for Economic Cooperation and Development
ONS	Office for National Statistics (United Kingdom)
OPEC	Organisation of the Petroleum Exporting Countries
PGE	Platinum Group Elements
PGM	Platinum Group Metals
q-o-q	Quarter-on-quarter
RBZ	Reserve Bank of Zimbabwe
SADC	Southern African Development Community
SARW	Southern African Resource Watch
Sonangol	Sociedade Nacional de Combustíveis de Angola
TSX	Toronto Stock Exchange

UK	United Kingdom
US	United States of America
USGS	United States Geological Survey
WTI	West Texas Intermediate
ZAR	South African Rand
ZCCM	Zambia Consolidated Copper Mines Ltd.
Zimasco	Zimbabwe Mining and Smelting Company
Zimplats	Zimbabwe Platinum Mines
ZimTrade	Organisation of International Trade in Zimbabwe
ZISCO	Zimbabwe Iron and Steel Company
ZMDC	Zimbabwe Mining Development Corporation

FOREWORD

"The best way to protect the sector and attract investors is to ensure accountability, transparency and good resource governance."

Georges Soros, EITI Conference, Doha, 2009

This study is, firstly, to provide an overview of the mining sector in the region, and the social consequences of the downturn in this sector over the last quarter of 2008 and first quarter of 2009. It is, secondly, to profile the mining industries in each of the following countries: Angola, Botswana, the Democratic Republic of Congo, Malawi, Namibia, South Africa, Zambia and Zimbabwe. Views of affected parties are included, and an outline is provided of the national socio-economic and political consequences of the global financial crisis on this industry in each of the eight countries.

The current economic situation has left few industries untouched and mining worldwide (and in Southern Africa in particular) has been severely affected. The boom which came with an increase in the price of oil and minerals was interrupted in the last quarter of 2008. A reverse in price has seen a decrease in fiscal resources for treasuries in Southern Africa. This has started to impact on social delivery for central and local governments. It is estimated that the impact will be felt much more acutely in 2009.

Mining is cyclical by nature and mining companies take a long-term view on their operations. Evidence shows that when an economic downturn is on the cards, cutting back on jobs is often the first port of call to reduce costs. On the positive side, there are companies that adopt a long-term view to employment of staff, and work with various role-players to lessen the negative effects of economic downturns.

It is projected that if the economy does not improve within the next two years, more than half a million mineworkers in the region will lose their jobs. It is estimated that more than 25% of mineworkers are HIV positive. Only two countries reviewed in the study have sufficient reserves to deal with a long-term recession.

There is particular concern about increased poverty levels, the impact and cost of HIV and AIDS on people and governments, decreased social spending by companies and countries, and the time it will take to get employment back to levels seen in 2008.

Africa is one of the richest continents in the world when it comes to mineral resources, but has some of the poorest people. We have to ask ourselves at this point in history:

- Some of the biggest mining companies in the world built their wealth on the mineral resources of Africa – are they contributing and reacting positively during this downturn?
- How do new entrants to Africa view the continent – as a cash cow or as a long-term partner?
- Are governments ready and able to ensure that the impact of the current economic situation is limited, and do their long-term plans include scenarios and implementation plans to deal with the situation?
- Are trade unions and civil society organisations working together with the private and public sectors to ensure the current economic situation does not push Africa and her people further into the depths of poverty?
- Are Africa's international partners showing good will to support Africa in these difficult times?
- Are individuals prepared to accept their responsibility as citizens and work with the various role-players to build an Africa for future generations and ensure an African Renaissance?

The findings of this study show that although various measures have been put in place to reduce the impact of the crisis, not all countries, companies and role-players are equally well prepared for the proverbial "seven lean years".

In the context of this global financial crisis, nobody has been able to make accurate predictions about short-, medium- and long-term impacts on mining (and on countries in general). This is the first report of its kind. It moves from anecdotes to facts.

We hope that the findings of this study will guide governments, current and future players in the extractive industries, trade unions, civil society and citizens to learn from the lessons of the past and to deal creatively, innovatively and responsibly with the current situation facing Africa, and take her into the future in a sustainable manner.

"Noblesse Oblige"

EXECUTIVE SUMMARY

Players in the mining industry adopt a long-term view to their business operations. Therefore, in spite of the projected depth and severity of the current global financial crisis, serious mining companies will continue to strategically invest within the sector in anticipation of the inevitable upswing. Thus while many companies and sub-industries have been negatively affected by the commodity price crash (especially copper and diamonds) and have closed down or suspended their operations; others have actually benefited from the prevailing market conditions (most notably gold and uranium) and have expanded their business portfolios. Having said that, it is anticipated that the next two years until 2010 will prove extremely difficult for the global economy and the mining industry.

In general, the mining industry is an important and potentially large contributor to national economies of the eight countries we examined. However, the mining sector plays an important role to a varying degree in the different economies; contributing 22percent (US\$ 92 billion) towards the total regional output and 13percent (3.2 million jobs) towards regional employment. The lower employment contribution signifies to the relatively high capital intensity of the sector in the region (with the exception of the DRC).

In light of these variances across the nations and in accordance with World Bank and other leading international projections that form the foundation of our high-level model, we anticipate the regional mining sector to be attacked in the following ways:

- Decline in mining production and regional output
- Increased job losses

- Potential social consequences of the decline in mining sector
- Increased social tensions
- Growing frustration with governments' inability to effectively deal with the crisis
- Pressure on local empowerment initiatives

Mitigating against the potential outcomes

A number of high-level recommendations were put forward to potentially assist governments in mitigating against the negative consequences of the downturn in the mining industry. These recommendations are by no means exhaustive and merely serve as an indication of some the viable options that are being considered and/or implemented by nations.

Short-term responses (2009 to 2010):

- Continue to engage with mining companies in order to find optimal solutions to minimise the job losses;
- reduce the impact of the financial crisis on exploration companies by introducing reforms that include measures such as increasing tax credits;
- improve national beneficiation, value addition and downstream processing capabilities of raw materials;
- consider the formation of an agency to be jointly managed by business, labour, civil society, communities and government in order to invest in the economic development of mining towns, or labour-sending areas affected by retrenchments;
- continue investing in power generation, transport networks and telecommunication infrastructure and other public works projects should be made labour intensive in order to promote job creation, increase skills transfer and enhance national infrastructure, which is a prerequisite for a well-functioning mining industry;

- fast track budgeted government mining projects such as mining expansion projects and mining rehabilitation projects funded and driven by government.
 - if possible, increase government social spending in order to assist retrenched workers and “fill the gap” left by a potential reduction in social spending by the mines;
 - reign in political ambitions to drive the investment agenda and choose from a more limited pool of investors on a basis of the contributions to the country as a whole, even if the benefits are less to political post holders in a personal capacity.
- Medium- to long-term responses (2011 and beyond):**
- diversify the economy away from its dependence on a narrow and volatile commodity-dependent revenue stream
 - invest in agriculture;
 - promote political stability and sound macroeconomic management;
 - continually invest in and expand on power generation, transport networks and telecommunications infrastructure;
 - improve internal downstream processing capabilities in order to enhance the overall global competitiveness of the region;
 - develop and implement environmental management programmes;
 - introduce or improve national revenue mechanisms through the development of improved fiscal management laws and institutions that smooth national spending and insulate a nation’s economy from the negative impacts of volatile revenues;
 - continue to work with mining companies to reduce the impact of HIV/AIDS on the mining industry.

INTRODUCTION

The purpose of this report is to give detailed analysis of the impact of the global financial crisis on the mining sector in eight Southern African Development Community (SADC) countries, namely Angola, Botswana, the Democratic Republic of Congo (DRC), Malawi, Namibia, South Africa, Zambia and Zimbabwe. The Southern Africa Resources Watch thought that it was important to move away from anecdotal arguments currently on the impact of the global financial crisis on the mining sector and provide facts of the impact of the crisis.

Firstly the report provides an analysis of the global financial crisis, commodity price fluctuation and the overall impact on Africa. Secondly it gives an overview of the mining sector in Southern Africa region, and the social consequences of the downturn in this sector and thirdly it profiles the mining industries in each of the countries. An outline of the national socio-economic and political consequences of the global financial crisis on this industry in each of the eight countries is provided.

Information was gathered from desktop research, developing a model, conducting interviews, and utilising Deloitte's extensive network of industry expertise. The information contained in this document is by no means exhaustive, and instead is intended to give the reader a high-level and current overview of this important industry in each of the identified countries.

SARW outsourced the project to Deloitte and Touche, which compiled the report. By conducting interviews and desktop research, as well as formulating a strategic model, and utilising Deloitte's extensive network of industry expertise, this report provides a high-level overview of the socio-economic and political consequences of the global recession on one of the continent's largest and most important industries.

The report includes the following sections:

- an overview of the global financial crisis and its impacts on developing countries, the continent, as well as the commodity markets;
- a general discussion of the mining industry in Africa and how specifically the global financial crisis has impacted on its operations and furthermore, how China-Africa trade has been affected by the dramatic decline in commodity prices;
- an overview of the anticipated outcomes on the downturn in the mining sector for the region, (supported by a high-level strategic model developed by the team) and the profiles for each of the eight countries and their mining sectors;
- general recommendations as to how the regional governments could mitigate against these potential outcomes.

THE GLOBAL FINANCIAL CRISIS

The Global Financial Crisis and Developing Countries

Emerging markets have had a good run in recent years on the back of buoyant world trade growth and abundant global liquidity, which in turn drove strong domestic expansion. However, the world is entering a major downturn caused by the biggest shock in mature financial markets since the 1930s. The environment has changed dramatically in the second half of 2008 and it is predicted that it will continue to deteriorate further in 2009, as financial conditions worsen and export demand from the developed countries and large emerging markets such as China and Russia weaken.¹ Please see Box 1 for a high level overview of the global financial crisis.

According to the World Bank,² current projections for high income countries have decreased dramatically from 2.5% in 2007 to 0.1% in 2009. World trade volumes are expected to actually contract in 2009, the first time since the 1982 recession. The world recession will pose a severe test for the quality of economic policies and institutions in developing countries and will likely generate a sharp slowdown in their growth in 2009, through a variety of channels. Bank projections are for developing countries growth to tumble to 4.5% in 2009 from 7.9% in 2007. Moreover, as a result of the structural shock to the global economy from the current turmoil, even when recovery sets in the growth path of many emerging markets will be significantly slower than in 2004 to 2007.

Overall, developing countries are likely to be impacted in the following ways:³

- export growth will experience a dramatic deceleration as a result of the recession in advanced economies;
- remittances to developing countries have decreased and are likely to fall further;
- primary commodity prices have plunged at the prospect of falling world demand;
- private portfolio and bank lending flows to developing countries have fallen sharply, combined with extraordinary declines in stock prices, significant currency depreciation and sharp increases in external borrowing costs for both sovereign and private sector borrowers;
- foreign direct investment flows may also be expected to weaken in response to weaker global growth and tougher corporate financing conditions;
- over a longer horizon, aid flows will fall by the wayside and actual aid flows may stagnate or fall.

Commodity Price Fluctuations

Commodity market boom

From 2003 to 2007 the world saw an unprecedented magnitude, duration, and range of commodity price boom since the 1900's following from a stable but depressed era between 1981-2003. The main reasons behind the recent sharp increases were:

- Global demand driven by resilient global output growth especially in developing countries. The developing world's demand for some commodities was much stronger than in high-income countries, both because developing country output was growing relatively faster and because commodity-intensive manufacturing activities were being transferred from high income to developing countries. This was particularly driven by the industrialisation of China and the unusually high and rising metal intensities that accompanied the process.
- Tightening supply with a decrease in surplus capacity and excess supply. In the oil and metals sector, the supply pressures that built up over the past five years with associated

BOX 1

TIMELINE OF THE GLOBAL CREDIT CRUNCH: A HIGH-LEVEL OVERVIEW

2004 – 2006: Growing Sub-Prime Problems

After a two year period between 2004 and 2006 when US interest rates rose from 1% to 5.35%, the US housing market begins to suffer, with prices falling and a rise in homeowners defaulting on their mortgages. Default rates on sub-prime loans (high risk loans to clients with poor or no credit histories) rise to record levels.

April – August 2007: Sub-Prime Contagion

New Century Financial, which specialises in sub-prime mortgages, files for Chapter 11 bankruptcy protection and cuts half of its workforce.

August 2007: Scale of the Credit Crisis Emerges

Liquidity issues become a major concern as banks start refusing to do business with each other. Central and major banks in Europe, North America and Japan start intervening.

September – October 2007:

The rate at which banks lend to each other rises to its highest level since December 1998. UBS, Citigroup and Merrill Lynch announce heavy losses due to sub-prime investments.

December 2007 – January 2008: The Bond Insurers

- The US Federal Reserve co-ordinates an unprecedented action by five leading central banks around the world to offer billions of dollars in loans to banks. The move succeeds in temporarily lowering the rate at which banks lend to each other.
- However, Ratings agency Standard and Poor's, downgrades its investment rating of a number of so-called monoline insurers, which specialise in insuring bonds. There is concern that insurers will not be able to pay out, forcing banks to announce another big round of losses. Global stock markets, including London's FTSE 100 index, suffer their biggest falls since 11 September 2001.

February – April 2008: Big Name Casualties

- In its biggest intervention yet, the Federal Reserve makes \$200bn of funds available to banks and other institutions to try to improve liquidity in the markets.
- Bear Stearns, is acquired by larger rival JP Morgan Chase for \$240m, in a deal backed by \$30bn of central bank loans.
- The IMF, which oversees the global economy, warns that potential losses from the credit crunch could reach \$1 trillion and may be even higher.

July 2008: Major Lenders on Edge

US mortgage lender IndyMac collapses becoming the second-biggest bank in US history to fail. Financial authorities step in to assist America's two largest lenders, Fannie Mae and Freddie Mac. This becomes one of the largest bailouts in US history.

August – September 2008: Giants Suffer

- Revised figures from the ONS reveal that the UK economy is a standstill, and the Organisation for Economic Cooperation and Development (OECD) forecasts that the UK will be in a full blown recession by the end of the next two quarters.
- Dire economic warnings from the European Commission, state that the UK, Germany and Spain will go into recession by the end of the year.
- Lehman Brothers files for Chapter 11 bankruptcy protection, becoming the first major bank to collapse since the start of the credit crisis. Merrill Lynch agrees to be taken over by Bank of America for \$50bn. Furthermore, the US Federal Reserve announces an \$85bn rescue package for AIG, the country's biggest insurance company, to save it from bankruptcy. In the largest bank failure yet in the United States, Washington Mutual, the giant mortgage lender, is closed down by regulators and sold to JPMorgan Chase.
- The credit crunch hits Europe's banking sector as the European banking and insurance giant, Fortis, is partly nationalised to ensure its survival.

TIMELINE OF THE GLOBAL CREDIT CRUNCH: A HIGH-LEVEL OVERVIEW (continued...)

August – September 2008: (continues)

- In the US, lawmakers announce they have reached a bipartisan agreement on a rescue plan for the American financial system. It will be the biggest intervention in the markets since the Great Depression of the 1930s.

October – December 2008: Into Recession

- The US Federal Reserve, European Central Bank (ECB), Bank of England, and the central banks of Canada, Sweden and Switzerland make emergency interest rate cuts of half a percentage point.
- Finance ministers from leading industrialised nations pledge action to tackle the financial crisis.
- The governments of the UK, US, France, South Korea, Holland, Sweden devise rescue plans and inject money into their respective economies. India, Denmark, Japan, US, UK and the European Central Bank continue to cut interest rates.
- The euro zone officially slips into recession. The European Commission unveils an economic recovery plan worth 200bn Euros which it hopes will save millions of European jobs. The scheme aims to stimulate spending and boost consumer confidence.
- The IMF approves loans to the Ukraine, Iceland, and Pakistan.
- The US recession is officially declared by the National Bureau of Economic Research, a leading panel including economists from Stanford, Harvard and MIT.
- President George W Bush says the US government will use up to \$17.4bn of the \$700bn meant for the banking sector to help the Big Three US carmakers, General Motors, Ford and Chrysler.

January 2009: Gloom deepens

- China's exports register their biggest decline in a decade.
- The UK has officially entered a recession as fourth quarter GDP falls by 1.5% compared to the previous three months.
- The IMF warns that the world economic growth is set to fall to just 0.5% this year, its lowest rate since World War II.
- The International Labour Organization said that as many as 51 million jobs worldwide could be lost this year because of the global economic crisis.

Source: BBC website (29 January 2009)

rising prices stemmed mainly from slow-growing supply capacity during the 1990s (after the 1980 oil shock and the collapse of demand in the former Soviet bloc). As a result of the idle capacity, prices remained low in the oil and metals sectors and firms did not have the economic incentives to increase productive capacity. When the spare capacity was exhausted in the early 2000s, supply was no longer able to keep pace with strengthening demand, and prices began to rise.

The initial acceleration in prices was first visible in the oil market and was quickly followed by developments in the metals and minerals market. The real price of agricultural products was broadly stable, especially in developing countries, and began to rise sharply only in early 2007. Prices increased to unprecedented double digit rates with oil prices

increasing at an estimated 30.3 percent per year from 2003-2007 while the commodities price index rose at 23 percent per year during the same period.⁴

As the global financial crisis deepened and spilled over to the real economy, the middle of 2008 saw the end of the commodity boom. The severe decline in key commodity prices since June 2008 can be explained by commodities' role as production input as well as financial asset. A slowdown in global economic activities and commodity demand for production purposes combined with supply capacity increasing. Rising commodity prices the past five years have been a major driver behind the recent decline. Financial turmoil has furthermore accelerated the downward price momentum as investors reduced holdings of commodity assets.

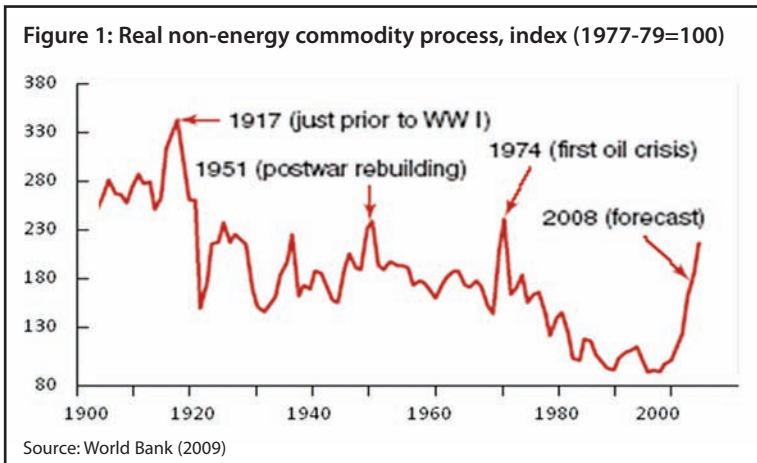


Table 2: The price changes of key commodities since the fourth quarter (Oct – Dec) 2009 are given in the table below:

Commodity	Q4 (2007)- Q1 (2008)	Q1 (2008)- Q2(2008)	Q2 (2008) – Q3 (2008)	Q3(2008) – Q4 (2008)	Q4 (2008) – Jan (2009)
Energy					
Coal, Australia	36.6	21.6	17.4	(42.9)	(13.9)
Crude oil, avg, spot	8.8	26.9	(4.4)	(51.6)	(21.7)
Natural gas Index	19.0	21.6	(0.7)	(6.2)	(13.6)
Metals and Minerals					
Aluminium	12.2	7.2	(5.2)	(34.6)	(22.4)
Copper	8.5	8.3	(9.0)	(49.2)	(17.5)
Gold	17.6	-3.3	(2.9)	(8.6)	8.1
Iron ore	66.0	0.0	0.0	0.0	0.0
Lead	-9.8	-20.4	(17.1)	(34.9)	(9.0)
Nickel	-0.9	-11.3	(26.2)	(42.8)	4.3
Silver	24.0	-2.5	(13.1)	(31.7)	11.7
Steel products index	19.5	21.6	21.1	(8.2)	(8.6)
Tin 8.8	27.4	(9.4)	(36.2)	(13.2)	
Zinc	-7.4	-13.0	(16.2)	(33.1)	0.2

Source: World Bank (2009)⁵

The commodity market bust

The impact of the expected global downturn on prices will vary across commodities depending on their respective income elasticities as well as their perceived value as financial asset. Food prices in particular are likely to be less affected by changes in global growth prospects while the downward pressure on the prices of precious metals such as gold and silver could be mitigated by their perceived value as financial assets.

The trends in diamond and platinum prices (excluded from above table due to lack of data)

illustrate the high income elasticities of both these mining products. Diamond prices are expected to decline up to 30% in 2009 while platinum prices are expected to decline from 2009 to 2013 - a 41% decline in 2009 and a further 23% decline in 2010.⁶

Table 2 shows the steep decline across all energy and metal commodities between the third (July-September) and fourth quarters (October – December) of 2008. The decline continued for most all energy commodities and most metals in January 2009, with precious metals gold and silver showing signs of price corrections as their position

in financial portfolios was slightly restored. Crude oil and metals such as copper, nickel, lead, aluminium, tin and zinc were especially hard hit mainly because of their relatively higher reliance on heavy industry and automobile and construction sectors – sectors that experienced early exposure to the financial crisis.

The decline in iron ore and steel prices is lagging slightly behind due to former commitments to long term capital projects but prices are expected to continue to decline significantly through 2010 (especially as new capacity comes online).

It is expected that the global oil demand will remain weaker throughout 2009. OPEC will likely have to cut production further to stabilise prices. The mitigation of the expected decline in oil prices will depend on the ability of OPEC discipline to hold up, given members' need for oil revenue. Nevertheless, a rebound in prices would not mean that prices will reach the levels seen earlier in 2008.

In the short to medium term, the severity of the global downturn will be a key factor behind commodity prices. In terms of metal prices, China accounted for almost all of the incremental demand for key metals over the past year and a half. Therefore, much will depend on how much credit constraints will lower financing for investment projects, and how much fiscal stimuli could boost infrastructure development and support metals demand.

While much weaker GDP growth is projected to cause commodity prices to ease further in the short run, they should nevertheless remain higher than they were during the 1990s. Real food prices are projected to decline by 26 percent between 2008 and 2010, energy prices to fall by 27 percent, and metals prices to decline by 32 percent.⁷

Over the long run, global GDP growth is expected to return to higher levels, however the demand for commodities is expected to stay in pace with supply, easing the continued pressures on resources that saw prices skyrocket from 2003 and 2007.

Global demand and supply outlook

It should be noted that SARW is in agreement with the forecasts developed by the World Bank,

and have used their projections to model and measure the impact of the global financial crisis on the mining sector.

On the *demand side* there are a number of factors behind the slowing of global commodity demand:

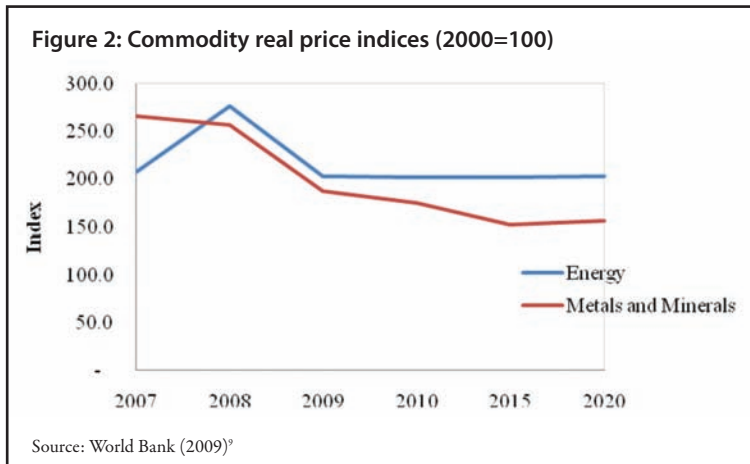
- slower growth in commodity intensive developing countries (as population growth slows and income levels catch up with the West);
- China's metal intensities are expected to stabilize in coming years and then begin to fall as the country's very high investment rate declines and the transitional shift in global manufacturing capacity from high-income countries to China slows;
- substitution away from expensive materials should slow demand over the long term, facilitating a decline in prices- With some 75 percent of future energy demand expected to come from the transport sector, especially in developing countries, the pace of future energy demand growth (and its composition) will depend heavily on future efficiency gains in car technology;
- the structure of global GDP (services tend to be less commodity-intensive than manufactured goods) total output held by the less commodity intensive service sector.
- Overall, global demand for metals is expected to continue to grow somewhat more quickly than global GDP, at about 4.0 percent through 2015, before slowing to around 2.5 percent in the period 2015–30, a pace significantly slower than that of projected GDP growth itself.

On the *supply side*, the supplies of extracted commodities are expected to remain ample over the next 20 years. According to the World Bank report, although the absolute quantity of fossil fuels and metals in the earth's crust is declining and the quantity that is extracted each year is rising, there appears little likelihood that the world will run out anytime soon. Historically improvements in extraction technology have advanced quickly enough to keep the cost of exploiting new sources stable or even falling, despite increased remoteness.⁸

Although oil prices are likely to fall below existing levels during the current downturn, they are

expected to rise during the recovery and stabilise at around \$75 a barrel in real terms because new supplies have higher production costs, and a majority of known reserves are located in remote and politically unstable regions.

The graph below shows the steep decline in commodity prices followed by projected stability in average prices over the long term as supply is expected to keep pace with slower growing global demand.



The Global Financial Crisis and its Impact on Africa

The financial crisis is threatening to turn back the clock on the progress achieved on the continent during decades of reforms that have geared economic policy toward ensuring Africa is a more attractive destination for private capital. The crisis has triggered quick depreciation of currencies and major declines in stock market prices with foreign investors in securities and equities selling off large shares of their holdings. However, as sub-Saharan Africa is less integrated in the global financial and commercial system compared to other regions, it is expected that growth will soften relatively more moderately.¹⁰

For Africa, weaker external demand and lower commodity prices will be the major mechanisms through which the financial crisis will be transmitted. The impact of the global financial crisis and

the ensuing recession in Africa will be four, according to World Bank Chief Economist for Africa, Shanta Devarajan (2008):

- A slowdown in private capital flows will adversely affect economies that have been relying on these flows to finance much-needed investment, particularly infrastructure investment;
- lower global demand causing export revenues in many countries to fall sharply and eroding fiscal positions, corporate profitability, incomes and a decline in specific niche sector revenues, such as tourism;
- lower economic output having significant consequences for employment and poverty;
- remittances, which run at approximately US\$15 billion a year to Africa, and foreign aid, are likely to be negatively affected.

Furthermore, other reports predict that some sub-Saharan African countries will also:

- become more vulnerable to external shocks, including terms-of-trade shocks;
 - be negatively affected if the large-scale injection of liquidity into the global financial system fuels inflation as monetary authorities fail to reverse policies at the first signs of a turnaround;
 - be affected by falling commodity prices and consequent changes in terms of the trade.
- According to a World Bank report, more than half of the countries in a sample of 162 economies are expected to see an increase in the terms of trade, of which 24 will experience gains in excess of 1.5 percent of GDP. About a quarter of the countries, including most oil producers, are seen to incur first-round income losses in excess of 1.5 percent of GDP (e.g. Angola). Economies that rely strongly on metal exports (e.g. Zimbabwe) could expect reduced incomes of more than 2% of GDP.¹¹

THE MINING INDUSTRY IN SOUTHERN AFRICA

Overview

Africa produces more than 60 metal and mineral products and is a major producer of several of the world's most important minerals and metals including Gold, Platinum Group Elements (PGE), Diamonds, Uranium, Manganese, Chromium, Nickel, Bauxite and Cobalt. Countries such as South Africa, Ghana, Zimbabwe, Tanzania, Zambia and the DRC dominate the African mining industry.¹²

It is interesting to note that Africa's contribution to the world's major metals (copper, lead and zinc) is less than 7%. Silver production is also low (less than 3% of the world's production) due to the fact that most silver is produced as a by-product of lead, zinc and copper mining. Although under-explored, Africa hosts about 30% of the planet's mineral reserves, including 50% of gold, 60% cobalt, 90% of the world's Platinum Group Metals (PGM), and vast diamond reserves making it a truly strategic producer of these precious metals.

The mining industry thus performs a strategic role for Africa by earning a major part of the continent's export revenues. Earning more than 75% of its country's export revenues, the mining industry of Botswana leads the sector in Africa, followed closely by Namibia and Angola, where the discovery of significant reserves of uranium and diamonds are fuelling mining activity.¹³

However, these very natural resources have been responsible for fuelling violence, corruption, internal dissent and civil wars. Over the years, there has been rampant smuggling, and rebel movements on the continent have used mining commodities, especially diamonds, to finance wars against governments.¹⁴

The Impact of the Global Financial Crisis on Mining in Southern Africa

Mining projects in the Southern Africa have been greatly affected by the global financial turmoil. Examples range from De Beers' diamonds experiencing low demand, to South African ferrous-metals-miner Assmang switching off two of its ferrochrome furnaces in Machadodorp, in Mpumalanga. Copper production at Zambia's Bwana Mkubwa plant has been suspended, pending an improvement in demand.¹⁵

Furthermore, shutdowns, delays and cutbacks have an impact in broader terms on the national economies, and result in job losses and the threat to environmental protection. For instance, mining group Lonmin reported that its production at the Baobab plant, in Limpopo, had declined 31% in the last year. This has resulted in speculation that 1 600 workers will be retrenched. Aim-listed base-metals producer, Weatherly International, is retrenching 100 workers from two operations in Namibia, and is closing two other operations altogether. The copper producer stated that it is under severe pressure and has no scope to absorb workers into any other operations. While capital expenditure for the company will be significantly reduced by the job cuts, there is, unfortunately a great human cost.

Southern Africa is encountering, many of the same issues that other mining industries are facing globally (see Box 2 below), and a good example of this is what is occurring in the DRC. The DRC has substantial mineral wealth and, consequently has attracted considerable interest from the mining industry. However, there have been withdrawals from projects in the country altogether. For instance, it has been reported that Central African Mining & Exploration has temporarily suspended copper and cobalt operations in the

DRC owing to weaker demand and falling metal prices, given the contraction in the financial markets.

In a recent global mining survey, mining sector executives predicted a severe pullback in exploration activity, and expect that around a third of the world's exploration firms will not survive the current downturn.¹⁶ And, across Africa, many new projects that were to begin in 2008 and 2009, including uranium, iron ore and titanium, are being delayed. In recent years, mining activity has helped propel growth rates on the continent to their highest levels in decades, offering hope to an end of the cycles of poverty. According to a recent Wall Street Journal article,¹⁷ with the fall in commodity prices, investing in Africa has become a "hard sell" again. Coupled with the lack of infrastructure and the political instability, investors are becoming further dissuaded (please see Box 3 for an overview of project delays, mine shutdowns and setbacks that have occurred in Africa's mining industry since October 2008). For example, the commodity price boom greatly helped the mining province of Katanga in the DRC, however, Katanga is now in freefall as many of the mines are closing and economic conditions are worsening as a result. Indeed, the upsurge in violence in eastern Congo may be due in part to the fact that rebels fighting the Congolese government are aware of the commodity price decline and are deliberately attacking a government that has grown weaker.¹⁸

However, there seems to be some hope. For example, in the DRC companies such as consulting firm SRK Consulting has decided to expand its operations despite the gloomy world context. Furthermore, African-focused diamond explo-

ration company BRC DiamondCore has provided an update of its activities within the region (including continuing plans for exploration) and have identified the Northern DRC as a highly prospective region for diamond mining. This might seem surprising at a time with falling diamond demand.

Further, other companies have reported continued involvement in African mining activities (please see Box 5 at the end of this chapter for more detail). For example, international exploration and mine development company Equinox Minerals has accepted the process plant and other related infrastructure proposal for the Lumwana copper project, in Zambia, from its engineering, procurement and construction contractors. The crushing of material at the primary crusher has already started at what will be the largest copper mine on the African continent.

Elsewhere, indispensable sectors such as coal mining are still being pursued. Uranium-miner Uranio announced the acquisition of the Imatolo coal project, in Madagascar. It has obtained over R33-million as an additional cash injection. Also, diversified mining group Rio Tinto, which has operations in 12 African countries, is directing its efforts towards the potential exploration of minerals like bauxite, coal, diamonds and mineral sands. However, the global financial crisis highlights Africa's underinvestment in agriculture, food security and socio-economic concerns and the need for the continent's economies to diversify their national production and minimise their dependence on raw material exports.

BOX 2

THE TOP 10 GLOBAL MINING ISSUES IN 2009

- 1 Commodity price fluctuations.
- 2 Mining companies are caught between higher costs and lower prices.
- 3 Tight credit markets put expansion at risk.
- 4 Talent and equipment shortages remain chronic.
- 5 Permitting, politics and tax policy volatility.
- 6 Quality assets are getting harder to find.
- 7 Consolidation remains an industry imperative.
- 8 Environmental concerns continue unabated.
- 9 Preparing for tighter regulatory environments.
- 10 Electricity shortages affect operations.

Source: Deloitte's "Tracking the Trends 2009"

BOX 3

**PROJECT DELAYS, MINE SHUTDOWNS AND SETBACKS IN AFRICA
(OCTOBER 2008 – JANUARY 2009)**

JANUARY 29 - Global diversified miner Xstrata on Thursday reported a 35% drop in annual profit, falling from 2007's record \$5.54-billion to \$3.59-billion in the 2008 financial year.

JANUARY 27 - Platinum miner Aquarius Platinum says the "dire" global macroeconomic environment has weakened platinum group metals prices further during the second quarter, and warns that the firm will likely post an interim loss of between \$75-million and \$85-million.

JANUARY 27 - The retreatment of diamond tailings at South Africa's new Lace diamond mine was rendered uneconomic when the prices the mine was receiving for its diamonds fell by 50% in the last quarter of 2008, says DiamondCorp CEO

JANUARY 26 - Production at the Transalloys manganese-ore smelting operation in South Africa will cease for two months because of reduced current market demand.

JANUARY 23 - JSE-listed ferrochrome producer Merafe Resources says that the European benchmark ferrochrome price had dropped by 57% in the first quarter. The quarter's ferrochrome price had been settled at \$0.79/lb, down from the \$1.85/lb in the fourth quarter of 2008.

JANUARY 21 - Gold Fields, the world's No. 4 gold producer, is considering laying off some 1 500 workers at its South African operations due to downsizing at some of its mines, Reuters reports, citing a union official.

JANUARY 21 - TSX- and Aim-listed African Copper reports that its Mowana mine, in Botswana, had been placed on care-and-maintenance, pending the finalisation of negotiations to obtain \$15-million working capital.

JANUARY 16 - Diamond giant De Beers Consolidated Mines (DBCM) started a consultation process with union representatives regarding possible retrenchments, after it evaluated the new business environment in which its mines have to operate.

JANUARY 15 - Gem-miner Namakwa Diamonds says it is likely that it will put some of its mines on care-and-maintenance, in a response to weak diamond prices.

JANUARY 14 - South African miners Impala Platinum Mvela Resources and Northam Platinum terminated a M&A deal, citing the world's uncertain economic climate as well as the ongoing volatility in commodity and equity prices.

JANUARY 14 - Canada-based diamond producer BRC DiamondCore says it will maintain the suspension of bulk sampling at its projects in South Africa's Northern Cape province, and that it will start consultations with labour unions and employees over jobs.

JANUARY 9 - Diversified minerals exploration company African Eagle Resources places the majority of its advanced projects on care-and-maintenance, while restricting its active operations to the Dutwa nickel project, in Tanzania.

JANUARY 7 - Equinox Minerals says it will continue to stockpile uranium ore at its Lumwana copper mine, in Zambia as prices for the nuclear fuel do not support the construction of a treatment plant.

DECEMBER 17 - Diversified miner Anglo American has halved its 2009 capital expenditure to \$4,5billion.

DECEMBER 17 - The world's biggest platinum producer will restrict its 2009 capex to R9.1-billion, retain its 2008 2.4 million-oz production target in 2009.

PROJECT DELAYS, MINE SHUTDOWNS AND SETBACKS IN AFRICA
(OCTOBER 2008 – JANUARY 2009) (Continued...)

DECEMBER 12 - Namibian diamond producer Namdeb and De Beers Marine Namibia will immediately reduce production for the remainder of 2008 and early 2009, as a result of high inventory levels and low liquidity impacting on wholesale clients' ability to purchase new rough diamond supplies.

DECEMBER 11 - Africa-focused nickel-miner Albidon is considering reducing its employee numbers, as well as closing its Cape Town exploration office and its Lusaka corporate office, in order to strengthen its balance sheet.

DECEMBER 8 - TSX- and ASX-listed minerals company Anvil Mining has begun the process of suspend-
ing concentrate production, postponing underground development work, and initiating a care-and-maintenance programme at its 90%-owned Dikulushi copper mine.

DECEMBER 8 - The continued deterioration of the stainless steel market has prompted ferrochrome producer Assmang to close another furnace, cutting output by an additional 45 000 t/y.

DECEMBER 3 - BHP Billiton is reducing manganese and alloy production in line with market weakness.

DECEMBER 3 - JSE-listed diamond producer BRC Diamondcore has implemented a strategic suspension of its bulk sampling projects in the Northern Cape, in view of the current depressed diamond prices.

DECEMBER 3 - South African trade union Solidarity says more than 12 000 mining jobs could be at risk in the country.

DECEMBER 1 - Diamond-miner Petra Diamonds has started an operational review at both its Helam and Star fissure mines in South Africa, in a response to the weakening of rough diamond prices.

DECEMBER 1 - Heric Ferrochrome has reduced production by about 70%, and is operating only one of the four furnaces at its facility in Brits

DECEMBER 1 - The Xstrata-Merafe joint venture will suspend operations at another five ferrochrome furnaces, bringing the company's offline capacity to 906 000 t/y, or more than half of its annual production capability.

NOVEMBER 26 - Bindura Nickel Corporation, majority-owned by Mwana Africa, announces the closure of two nickel mines, and its smelter and refinery operations in Zimbabwe, citing low nickel prices and operational problems.

NOVEMBER 25 - Ferrochrome producer International Ferro Metals has suspended production at its two ferrochrome furnaces in South Africa in a response to falling demand.

NOVEMBER 21 - Katanga Mining has temporarily stopped mining operations at the Tilwezembe open pit and ore processing at its Kolwezi concentrator, in the Democratic Republic of Congo, in response to slumping cobalt prices.

NOVEMBER 20 - Impala Platinum has suspended its share buy-back programme, and will review its capital expenditure, in an effort to preserve cash, given the current global financial crisis and economic downturn, the rapid decline in platinum group metal prices, and the increased volatility within the capital markets,

NOVEMBER 19 - Platinum-miner Impala Platinum says that the decline in platinum group-metal prices and the increased volatility in global capital markets have complicated the firm's R21.2 billion bid for Mvelaphanda Resources and Northam Platinum.

PROJECT DELAYS, MINE SHUTDOWNS AND SETBACKS IN AFRICA
(OCTOBER 2008 – JANUARY 2009) (Continued...)

NOVEMBER 19 - Aim-listed base metals producer Weatherly International is closing two of its copper mining projects in Namibia and would retrench 100 workers from two other operations in the Southern African country, owing to a recent decline in world copper prices.

NOVEMBER 19 - Africa-focused diversified miner Central African Mining & Exploration temporarily suspended copper and cobalt mining operations in the Democratic Republic of Congo, due to weak demand and low prices.

NOVEMBER 18 - The world's third-largest platinum-miner, Lonmin, announces the closure of South African mines, and says it will halt growth projects. New CEO Ian Farmer says the company is bracing for "blood, toil, sweat and tears".

NOVEMBER 17 - London-listed diamond producer Gem Diamonds warns that it might post a full-year loss, and that it is reassessing its operations amid the global credit crunch. The company has already halted at least two projects in Africa.

NOVEMBER 17 - Teal Exploration & Mining reports that turmoil in the global commodity market has forced the explorer, a subsidiary of diversified miner African Rainbow Minerals, to cut output at the Lupoto copper project's small-scale mining operation in the DRC.

NOVEMBER 14 - Denver-based Geovic Mining will delay both construction and fundraising for its Nkamouna cobalt project, in Cameroon, in response to turmoil in global commodity, capital and credit markets.

NOVEMBER 13 - TSX- and ASX-listed copper-miner Anvil Mining has suspended the fabrication and construction works for its Kinsevere Stage II solvent extraction-electrowinning plant, until the company arranges additional funding and global financial and commodity markets stabilise.

NOVEMBER 12 - Copper-miner First Quantum has suspended production at its Bwana Mkubwa plant, in Zambia, and is renegotiating supply contracts to try accelerate the benefits of lower prices for oil and other key consumables, after copper prices fell sharply. The company will also defer nonessential exploration and capital expenditure programs.

NOVEMBER 10 - Platinum and chrome producer Xstrata Alloys and its South African joint-venture partner, Merafe Resources, will temporarily suspend six furnaces of the Xstrata-Merafe chrome venture. The six South African furnaces would represent about 500 000 t, or 29%, of the annual ferrochrome production of the chrome venture.

NOVEMBER 7 - Eastern Platinum is re-evaluating its short-term development plan in response to lower platinum-group metals prices.

NOVEMBER 3 - South African trade union Solidarity says that the world's third biggest platinum producer, Lonmin, issued unions a notice of possible retrenchments, as the company planned on cutting back on expenses.

OCTOBER 30 - Barrick Gold, the world's biggest gold-miner, is looking at opportunities to buy rivals or their assets cheaply, after the financial crisis and fears over weakening demand for commodities led to "amazing" declines in valuation.

OCTOBER 29 - Aquarius Platinum places its No. 2 shaft at Marikana, on the Western Limb of South Africa's Bushveld Complex, on care-and-maintenance, in response to low prices for platinum-group metals.

PROJECT DELAYS, MINE SHUTDOWNS AND SETBACKS IN AFRICA
(OCTOBER 2008 – JANUARY 2009) (Continued...)

OCTOBER 27 - South Africa's Simmer & Jack Mines says it will slow development at its Buffelsfontein gold mine and the Transvaal Gold Mining Estates, after a significant deterioration in capital market conditions to fund new growth projects.

OCTOBER 24 - South African ferrous-metals miner Assmang will switch off two of its ferrochrome furnaces at the Machadodorp works, citing adverse marketing conditions. The move is prompted by a sudden decline in demand for its products in the spot commodity markets, more specifically the demand for ferrochrome and chrome ores.

OCTOBER 24 - Copper and cobalt miner Katanga Mining is re-examining its capital expenditure plans, but, in the meantime, will continue funding the second phase of its Kamoto rehabilitation project

OCTOBER 23 - Diversified miner Anglo American is reviewing its capital expenditure programme owing to current market volatility and uncertainty.

OCTOBER 22 - Uranium One announces that its Dominion mine, in South Africa, will be placed on care-and-maintenance while the company considers looking for a buyer or closing the operation completely. Plummeting uranium prices, cost inflation and a slower-than-expected ramp-up at the mine, which has yet to achieve commercial production, resulted in a significant deterioration in the economics of Dominion.

OCTOBER 21 - Diamond giant De Beers will reduce the amount of unpolished gems at its next two sales due to reduced demand, according to Reuters.

OCTOBER 17 - Metals analysts say that many platinum projects still in the planning or development stage will battle to remain viable in the current pricing environment. One expert speculates that a number of platinum juniors are "dead in the water".

OCTOBER 15 - Zambia's Central Bank says that the global financial crisis will adversely affect demand for Zambian copper and hurt the flow of foreign direct investments. An official warns that a severe and prolonged financial crisis would affect demand for copper among major consumers like China and lead to a stagnation of growth in the country's copper mining industry.

OCTOBER 14 - London-listed Gem Diamonds warns it may postpone the start-up of its Gope project, in Botswana, because of expected delays in securing project finance.

OCTOBER 12 - The World Federation of Diamond Bourses urges mining firms to cut back on the supply of unpolished gems to the market amid the world economic crisis. Reuters reports that the organisation says the move is necessary to safeguard the strength of the industry.

Source: Mining Weekly (30 January 2009)

China – Africa Trade and the Global Financial Crisis

In recent years, mining ranked among the fastest growing sectors of the world economy, and the Chinese voracious appetite for commodities spurred investment in poor but resource-rich African countries. China's trade with Africa has dramatically increased from US\$11 billion in 2000 to US\$107 billion in 2008, as Africa represented a newer conti-

ental market for lesser-priced Chinese exports, and served as a major source of raw materials. By the start of 2008, over 800 Chinese state-owned enterprises were active on the continent, with Chinese firms investing in some 900 projects (most notably in the natural resource sector).

The political backing of investment in Africa was made explicit in 2006, dubbed as the "year of

Africa” in China, which precipitated a series of coordinated initiatives to promote foreign direct investment across the various sectors on the continent. The document, “China’s Africa Policy”, was generated by the Chinese government and detailed their key policies and priorities in Africa, which included encouraging and supporting Chinese enterprises’ investment and business in Africa.

While China’s GDP growth is substantially driven by domestic investment, the country derives much of its income from exports to the US and Europe, and therefore is not immune to the global financial crisis. Current economic realities have therefore affected China’s export incomes which will in turn affect its ability to import from resource-rich African countries. That China’s demand for raw materials has declined is evident in the fact that some Chinese entrepreneurs begin to leave the African market since the global decline in commodity prices (accelerated by the collapse of

Lehman Brothers in September 2008). Since November 2008, as the copper and cobalt prices have decreased, more than 60 Chinese mining companies have left the mineral-rich Katanga in Congo. Furthermore, over 100 small Chinese operators are reported to have left Zambian mines.

Despite some operators closing down their operations in Africa, many analysts believe that Chinese companies are the least likely to withdraw from Africa over the coming year. China has reportedly given the African Union assurances that its levels of aid and investment will be more or less maintained.¹⁹ The Chinese government has expended considerable resources cultivating ties with African partners for a range of strategic reasons, and the long-term thinking behind such relationships makes it unlikely that they would be derailed. On the other hand, while previous commitments are likely to be respected and consolidated, few new pledges are likely to be made in the near future.

BOX 4

CHINESE APPROACH TO AFRICA

Interview with Pieter Snyman, China-Africa Specialist, Programme Manager Asia Business Centre, Gordon Institute of Business Science (March 2009).

1 Largest recipients

Apart from information in a wide range of Chinese language sources, relatively little is known about the exact value of Chinese finance in African infrastructure. Estimates are that Chinese financial commitments to African infrastructure projects were less than US\$1 billion per year in 2001 – 2003 but rose to at least US\$7 billion in 2006 (the year officially declared by the Chinese as the “Year of Africa”), and then fell back to US\$4,5 billion in 2007.

According to a recent World Bank study there are more than 35 African countries engaging with China on infrastructure finance deals. However, approximately 70% of Chinese finance has gone to just four countries namely Angola, Nigeria, Sudan and Ethiopia. Guinea, Ghana, and Mauritania have also received sizable volumes (between US\$0.8 – US\$1.0 billion each).

- Initially, China’s involvement in Nigeria was relatively modest with a number of projects in the telecom and power sectors. In 2006 China has agreed to fund infrastructure projects in the amount of US\$5 billion, including the 2,600-MW Mambilla hydropower scheme and two major projects to upgrade and modernize Nigeria’s railway system. Nigeria’s new administration is currently reviewing all of these projects.
- In 2004 the China Ex-Im Bank agreed to a line of concessional credit to allow the Angolese government to repair infrastructure which was damaged in the country’s 27-year civil war. Angola has so far drawn three installments totaling US\$4 billion from this credit line. The first installment, for US\$2 billion, is known to have been backed by 10,000 barrels per day of oil exports (World Bank, 2008). This type of resource-backed financing deal has been dubbed the “Angola mode.”
- In Ethiopia, China’s engagement amounts to a total of US\$1.6 billion.
- China has provided US\$1.3 billion to Sudan for infrastructure development, since 2001.

CHINESE APPROACH TO AFRICA (Continued...)

2 Will China continue to deliver on its commitments given the current economic climate?

China will continue to deliver on its commitments despite the current economic climate, for various reasons.

Trade is the largest dimension of the economic relationship between China and Africa and in 2008, trade totalled US\$110 billion. While China-Africa trade may lessen from the international financial crisis, it is unlikely to stop altogether. Figures released recently show that China's exports tumbled by 25.7% in February 2009. However, the 4 trillion Yuan package of tax cuts and infrastructure spending that Premier Wen Jiabao announced earlier, may help China to achieve an economic growth target of 8% in 2009, even as world trade collapses. China spending on infrastructure, such as roads, railroad and power grids, has potential for a strong rebound of its economy in the next two to three quarters.

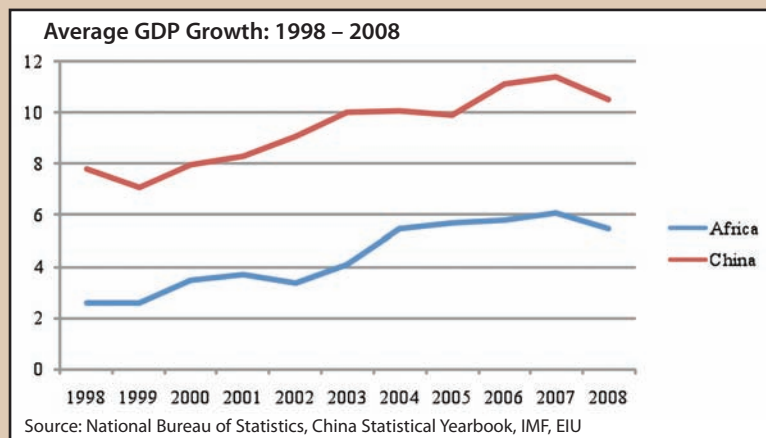
China had been trying to slow its economic growth for some time. As its economy has been growing too rapidly, it had 'sabotaged' its own economic growth in 2006/7 with resulting decrease in commodity imports into China. However, China had not expected or planned for the steeper decline in economic growth brought about by the global economic crises and the meltdown of the US financial markets.

It is quite clear that China's needs will not be depressed. China will have to move forward in its sourcing of natural resources and also agricultural land for food production in order to continue its high growth rate.

China's interest in Africa is based on a realistic approach to accessing desperately needed raw materials, especially oil, to drive its burgeoning economy, and a decision to invest in Africa was taken about ten years ago at the highest level in Beijing. China needs a reliable supply chain of the resources needed to grow its economy; Africa provides that.

If one compares China's economic growth since 1980 to date with that of Africa's over the same period, an interesting picture emerges. A comparison from 1998 / 1999 shows astonishing similarities. Since 1999, there is a strong correlation between China's and Africa's economic growth. The decline in real growth in China since the middle of 2008 seems to be nearly identical to Africa's decline in growth (Please see the figure below). This shows that Africa is increasingly dependent on China for its economic growth but similarly, China is also increasingly dependent on Africa.

China has also shown commitment on the promises that it made during the Forum on China – Africa Cooperation (FOCAC) meeting in 2006. One of the key outcomes of the Beijing Declaration was to establish a China-Africa Development Fund (CADF) valued at US\$5 billion, to encourage Chinese companies to invest in Africa. The CADF is aimed at resources, agriculture, electricity, and light industrial parks. Currently, the CADF is involved in 20 such projects in Africa with a total value of about US\$400 million.



CHINESE APPROACH TO AFRICA (Continued...)

The CADF will launch its Johannesburg Representative office on 16 March 2009.

China's willingness to invest in Africa and elsewhere, even in the global economic downturn, was confirmed when Angola announced earlier this month (March) that it has secured another billion-dollar loan from China. The money is to be spent on developing Angola's infrastructure. The CEO of the China Development Bank announced the latest finance deal.

The Chinese Ambassador to the Democratic Republic of Congo said recently China will not bow to a demand from the IMF to alter its existing accord with this mineral rich African country to spend US\$9 billion on mining and infrastructure. In terms of this agreement, China will give the DRC roads, railways, hospitals and schools in return for metals worth US\$50 billion. In January 2008, China agreed to assist rebuilding the DRC for control of 10 million metric tons of copper and 600,000 tons of cobalt. Earlier this year, President Hu Jintao visited Mali, Senegal, Tanzania and Mauritius. None of these countries are big, powerful, nor heavyweight producers of oil and other important minerals. The aim of the presidential tour to these countries was to demonstrate China's embrace of big and small states in Africa alike. At the time, Assistant Foreign Minister Zhai Jun said that China's interest was not "confined to energy and resources" and added that China "will honour its commitment to support the development of African countries and continue to encourage Chinese companies to further invest in and establish businesses in Africa." (Xinhua News Agency, February 9, 2009; People's Daily, February 13, 2009).

Laying the first brick of the Sino-Malian Friendship Bridge, President Hu stated it was the "the largest project carried out in West Africa paid for with money donated by China." Estimates put the cost of the 2, 6 km bridge at US\$74, 9 million.

The China Ex-Im Bank plays a key role in the expansion of China's commercial footprint in Africa and is rapidly establishing itself as the major source of loans for development projects on the African continent. Between 2001 and 2007 loans from the Ex-Im Bank accounted for about 92 % of recorded Chinese infrastructure finance commitments in Sub-Saharan. In May 2007, the Bank pledged to finance US\$20 billion in infrastructure in and trade to Africa over the next three years. Beijing's plan for African economic development and China Ex-Im Bank's financing proposal are significantly more than Western initiatives (US\$7 billion, pledged as part of the G8 process and other loan arrangements through the IMF and the World Bank). One can therefore expect China to expand its role as key financial partner in building Africa's infrastructure. A logical consequence of this would be an increase of Beijing's political influence.

BOX 5:

MINING IN AFRICA - NEW PROJECTS

AK06 diamond project (Botswana)

Boteti Exploration, a joint venture between De Beers Prospecting Botswana, African Diamonds and Wati Ventures, is developing the R3.6-billion AK06 diamond project located in the Orapa region of Botswana. The project is expected to produce an estimated 600 000 ct/y in the first three years of production.

Essakane gold project (Burkina Faso)

Orezone Resources' Essakane gold project is a free-milling, non-refractory gold deposit, with mineral reserves of 58.1-million tons, grading at 1,67 g/t of gold. The intention of the \$420-million project is to mine and process this deposit at a rate of 7,5-million tons a year in the initial years when mill feed is predominantly saprolite and transition ore, and 5,4-million tons a year in subsequent years when mill feed is entirely fresh rock.

Nkamouna cobalt/nickel/ manganese project (Cameroon)

Geovic Mining Corporation's \$398-million Nkamouna cobalt/ nickel/manganese project will involve the development of an openpit mine. The project has been delayed in response to turmoil in the global commodity, capital and credit markets. Prior to the global credit crisis, the mine was expected to start production in late 2010, and to ramp up to full capacity in early 2011.

Passendro gold project (Central African Republic)

Axmin's Passendro gold project is envisioned as a conventional open pit gravity carbon-in-leach operation, with a mine production rate of three-million tons a year. The capital cost of the project is estimated at \$196-million, excluding both working capital of \$5.5-million and sustaining capital of \$18.3-million.

Tongon gold project (Côte d'Ivoire)

The Tongon gold project, being developed by Randgold Resources, New Mining CI and the government of Côte d'Ivoire, will involve the construction of a 300 000-t/m gold mine, with a life-of-mine of over ten years. The total capital value, including financing, purchase of the mining fleet and ongoing capital, amounts to \$267-million.

Kamoto-Virgule Oliveira (KOV) copper/cobalt mine rehabilitation project (DRC)

Katanga Mining's large-scale Kamoto-Virgule Oliveira (KOV) copper/cobalt mine project, involves the rehabilitation of the KOV open pits, one of the largest high-grade copper deposits in the world. The entire project will cost \$1.6-billion, from an initial \$1.3-billion. The increase is in line with cost pressures being experienced across the mining industry and is driven primarily by significant escalation in the cost of construction materials, equipment, consultants and contractors.

Bisha gold and base metals project (Eritrea)

Nevsun Resources and the Eritrean National Mining Company are developing the \$246-million Bisha gold and base metals project. The conventional open pit mine is expected to produce 1.06-million ounces of gold; 747-million pounds of copper; 1.092-million pounds of zinc; and 9.4-million ounces of silver.

Simandou iron-ore project (Guinea)

Simandou is a world-class iron-ore exploration and mining project from which Rio Tinto expects to extract 70-million tons each year by 2018. The project will include significant mine, rail and port infrastructure. Studies completed to date estimate that an upfront capital investment of \$6-billion will be required to permit commercial levels of production to start in 2013.

Ambatovy nickel project (Madagascar)

The Ambatovy project is a joint venture partnership between the project operator, Sherritt International Corporation, the Sumitomo Corporation, the Korea Resources Corporation and the project's engineering contractor, SNC-Lavalin Group. It is a large-tonnage, long-life lateritic nickel project with a yearly design capacity of 60 000 t of nickel and 5 600 t of cobalt. The project will be among the largest nickel projects under development in the world and will cost \$3.3-billion to develop.

MINING IN AFRICA - NEW PROJECTS (Continued...)

Yalea underground project (Mali)

Randgold Re-sources' Yalea underground project involves the development of an underground gold mine at Loulo and will involve the sinking of two declines below the newly opened openpit and considerable mechanisation. The underground mine will extend the life-of-mine to 23 years and will cost about \$100-million.

Guelb el Aouj iron-ore project (Mauritania)

The Guelb el Aouj iron-ore project will see the construction of an openpit mine and processing plant at the Guelb el Aouj East deposit to process 17-million tons a year of magnetite-quartzite primary crusher feed to produce seven-million tons a year of direct-reduction-grade iron-ore pellets for about 30 years. The project, being developed by Sphere Investments, Société Nationale Industrielle et Minière and Qatar Steel, will cost an estimated \$2.14-billion.

Magnetite pipeline project (Mozambique and South Africa)

The Palabora Mining Company is conducting a feasibility study on a proposed 300-km pipeline from its copper mine in Phalaborwa, in Limpopo province, to the Port of Maputo, in Mozambique, which will enable it to export its 240-million tons of magnetite – a by-product of its copper-mining – in greater volume. If the company goes ahead with the pipeline, it may need to raise between \$500-million and \$1-billion to fund the project.

Valencia uranium mine (Namibia)

Forsys Metals plans to construct an openpit mining operation at the Valencia deposit, at a cost of \$188-million. The Valencia deposit is located 35 km along strike to the producing Rössing uranium mine and 40 km north of the Langer Heinrich uranium mine.

Sabodala gold project (Senegal)

The development plant for the Sabodala gold project incorporates an openpit mine, a process plant and on-site and off-site infrastructure designed to accommodate a processing rate of two-million tons a year. Mineral Deposits estimates capital costs to completion at \$111-million, including a \$12.2-million contingency and \$8.3-million for a water pipeline from the Falémé river.

Kono project (Sierra Leone)

Two shafts are being developed at the Kono kimberlite project. Petra Diamonds, which is developing the project, believes that the project has the potential to yield high grades of about 100 ct for each hundred tons.

Lumwana uranium project (Zambia)

Equinox Minerals has completed a uranium feasibility study, investigating the on-site treatment of the discrete high and high-grade uranium mineralisation contained within the Lumwana project copper pitshells. Should the project go ahead, it will cost an estimated \$200-million in preproduction capital to build.

Unki platinum mine (Zimbabwe)

Anglo Platinum is developing its first platinum mine in Zimbabwe, along the Unki deposit. The mine is expected to produce about 150 000 platinum ounces a year when fully operational. The cost has ballooned to more than \$200-million after a study indicated that the mine could treat greater tonnages

Source: Mining Weekly (16 January 2009)

COUNTRY PROFILES

Overview

The purpose of this section is firstly to provide an overview of the mining sector in the region, and the social consequences of the downturn in this sector and secondly to profile the mining industries in each of the following countries: Angola, Botswana, the DRC, Malawi, Namibia, South Africa, Zambia and Zimbabwe. An outline of the national socio-economic and political consequences of the global financial crisis on this industry in each of the eight countries will be provided. Please note that information pertaining to the different country profiles and models are captured in Appendix A and B.

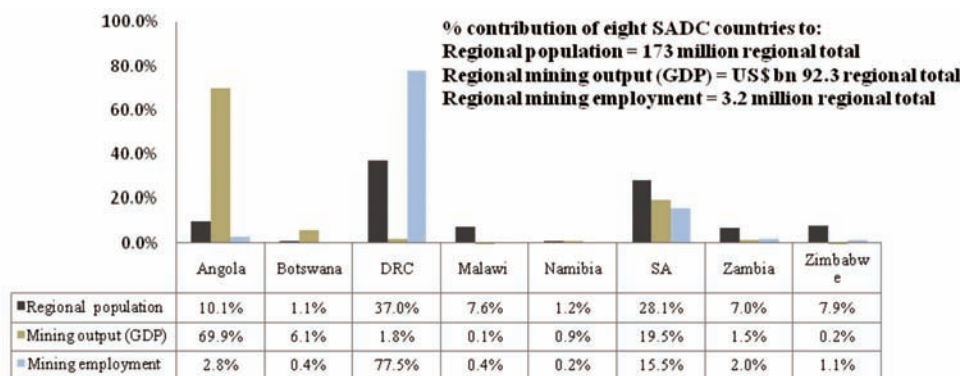
Impact on the region of the downturn in the mining sector

It should be noted from the outset that players in the mining industry adopt a long-term view to their business operations. Therefore, in spite of the projected depth and severity of the current global financial crisis, many major mining companies will continue to strategically invest within the sector in anticipation of the inevitable upswing. Thus while many companies and sub-industries

have been negatively affected by the commodity price crash (especially copper and diamonds) and have closed down or suspended their operations, others have actually benefited from the prevailing market conditions (most notably gold and uranium) and have expanded their business portfolios. Having said that, it is anticipated that the next two years until 2010 will prove extremely difficult for the global economy and the mining industry.

In general, the mining industry is an important and potentially large contributor to national economies of the eight countries we examined. However, the mining sector plays an important role to a varying degree in the different economies; contributing 22percent (US\$ 92 billion) towards the total regional output and 13percent (3.2 million jobs) towards regional employment. The lower employment contribution is because at the relatively high capital intensity of the sector in the region (with the exception of the DRC). Figure 3 below shows Angola, South Africa and Botswana as the main contributors towards regional mining output in 2008. While producing a low percentage of regional mining output, the DRC made the largest contribution

Figure 3: The regional distribution of mining output, employment and population in 2008



Source: Team Analysis (2009)

towards regional mining employment of almost 80 percent revealing the labour-intensive artisanal nature of the mining industry in the DRC.

Therefore, in light of these variances across the nations and in accordance with World Bank and other leading international projections that form the foundation of our high-level model, we anticipate the regional mining sector to be impacted in the following ways:

- **Decline in mining production and regional output**

On average, the region exported 85percent of its mining production within to neighbouring countries, the EU, Asia as well as the US. Due to declining global demand and falling commodity prices, the openness of this regional industry renders it especially vulnerable to the global financial crisis for the next two years. Regional mining output is forecasted to decrease by 23percent over the next years (2009-2010) before it starts increasing again by 16percent (2010-2015) and 14 percent(2015-2020), gradually working away the effect of the crisis within the next 10 years. However, it is predicted that in half the countries (Zambia, Zimbabwe, DRC, and South Africa) the effect of the crisis on the mining sector will still not be neutralised in 2020. In Zimbabwe, total mining production is forecasted to be 28percent-lower than in 2008, Zambia 15percent lower, South Africa 5percent and the DRC 2 percent This could be ascribed to the different mining commodities produced and different price forecasts for the commodities within the different countries.

- **Increased job losses**

As a consequence of lost production, more than half a million miningworkers in the region are expected to lose their jobs over the next two years, with the majority of these workers being in the DRC (64percent or 340 000) and are expected to involve mainly local artisans. The second largest group is expected to be miningworkers in South Africa (23percent or 120 000 workers).

While the absolute numbers of redundant miningworkers in the other countries forecasted are small, relative to the region as a whole, they contribute significantly to mining within the respective countries. In Zambia and Zimbabwe 33percent and 41percent of mining workers respectively are expected to lose their jobs within the next two years. This will result in a loss of 2percent of total formal employment in both countries. While mining employment is expected to increase in all countries after 2010 when the global markets are expected to improve, the rate of re-recruitment will be slow with only Angola and Namibia expected to show a very small net increase in mining employment in 2020 compared to employment levels in 2008. Uranium (20 percent of Namibian mining output) is expected to play a positive role within this sector after 2010. According the model, in 2020 there is expected to be still 175 000 less mining jobs in the region than in 2008 (which largely is due to, and depends on, the exposure of the other sectors of the domestic economy to the global financial crisis).

Contracting mining output is expected to have a further impact on output and employment in supply industries to the mining industries, as well as

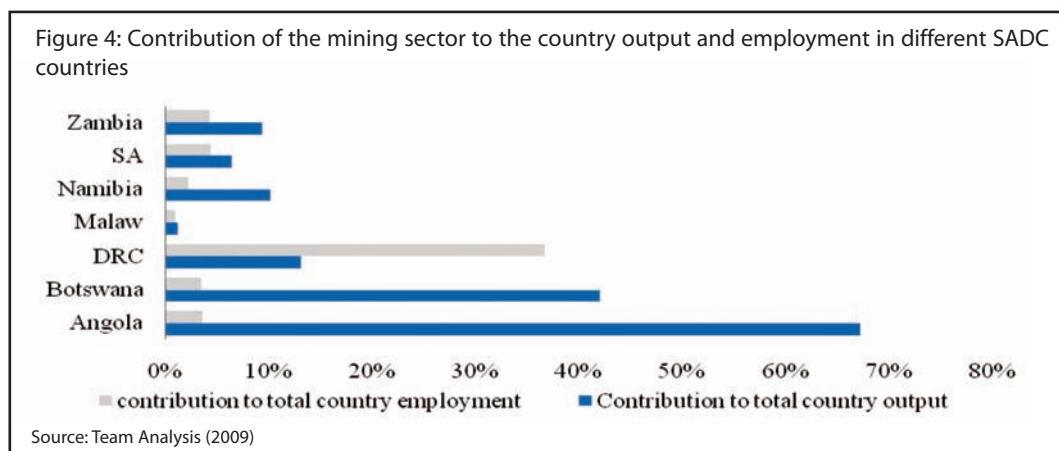
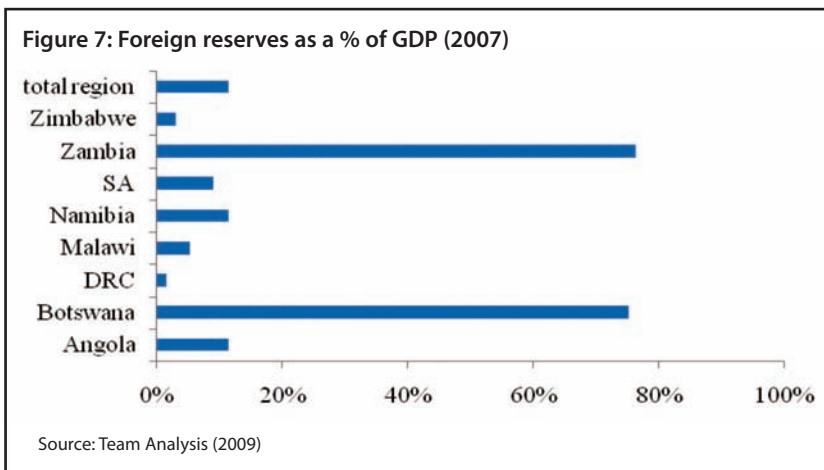
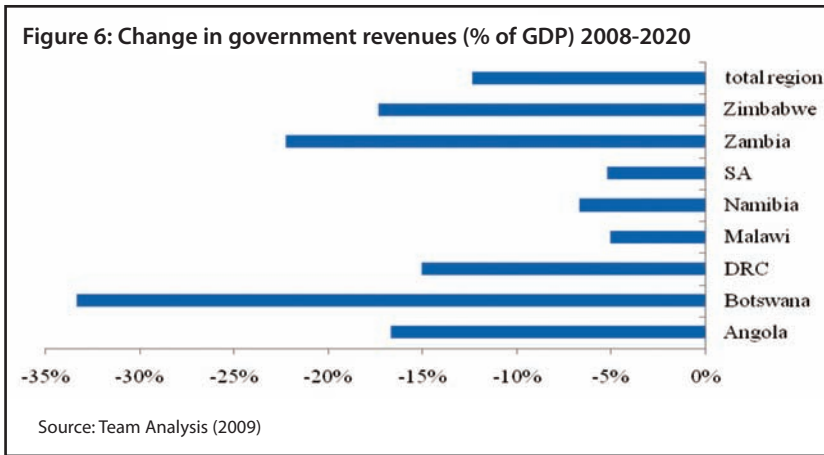
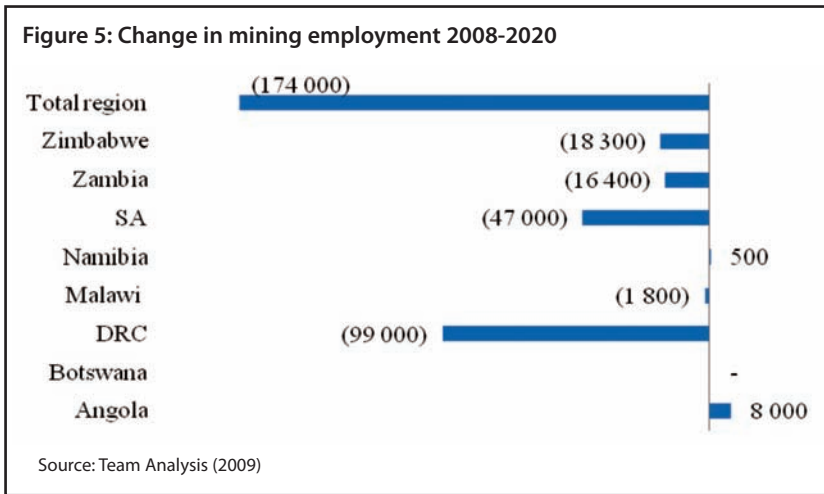


Table 3: Estimated current and potential mining job losses in Africa in 2009

Country	(Potential) number of job losses	Status	Company	Source
South Africa				
Estimated Total	14 000 to 40 000	Pending	Across all companies	MineWeb (29 January 2009)
Specific companies:	3 500	Pending	De Beers	Mining Weekly (9 February 2009)
	8 200	Unconfirmed	Various brick-makers	Solidarity (18 March 2009)
	319	Confirmed	BRC DiamondCore	Solidarity (18 March 2009)
	800	Confirmed	De Beers	Solidarity (18 March 2009)
	355	Unconfirmed	Namakwa Diamonds	Solidarity (18 March 2009)
	143	Confirmed	Rockwell Diamonds	Solidarity (18 March 2009)
	390 (contract staff)	Pending	Xstrata and Merafe	Solidarity (18 March 2009)
	582 (contract staff)	Pending	International Ferro Metal	Solidarity (18 March 2009)
	5 (and 57 contract staff)	Confirmed	Simmer & Jack	Solidarity (18 March 2009)
	59	Confirmed	Kudu Granite Operations	Solidarity (18 March 2009)
	56	Confirmed	Albidon	Solidarity (18 March 2009)
	1 013	Confirmed	Uranium One	Solidarity (18 March 2009)
	1 400	Confirmed	Murray & Roberts Cementation	Solidarity (18 March 2009)
	350	Pending	Petra Diamonds	Chamber of Mines (December 2008/ January 2009)
	1 950	Confirmed	Aquarius Platinum	Mining Weekly (15 December 2009)
	5 500	Confirmed	Lonmin	Mining Weekly (24 February 2009)
	1 600	Pending	Lonmin	Mining Weekly (16 January 2009)
	1 500	Confirmed	Goldfields	Mining Weekly (30 January 2009)
	1 700	Pending	DRDGold	Chamber of Mines (December 2008/ January 2009)
	3 200	Unconfirmed	Goldfields	Reuters (11 February 2009)
	10 000	Confirmed	Anglo Platinum	Reuters (11 February 2009)
	9 000	Confirmed	Anglo American	BBC (20 February 2009)
	900	Confirmed	Across SA, Australia and South America	Samancor Chrome
	900	Confirmed	Samancor Chrome	Mining Weekly (10 March 2009)
Namibia				
	100 (possibly 543 more)	Confirmed (Pending)	Wetherly International	Mining Weekly (16 January 2009) Mining Exploration News (2 December 2008)
Zambia				
Estimated Total	3 072	Pending	Across all companies	Wall Street Journal (26 January 2009)
Specific Companies	1 740	Confirmed	Luanshya Copper Mines	Mining Weekly (30 January 2009)
Botswana				
	580	Confirmed	Debswana	Mining Weekly (23 February 2009)
	177 (possibly 223 more)	Confirmed (Pending)	Moolman Mining	IRIN website (12 February 2009)
	348	Pending	Bamangwato Concessions Ltd.	IRIN website (12 February 2009)
DRC				
	200 000	Confirmed	Across all companies	BBC website (9 February 2009)

Source: Team Analysis (2009)



income effects due to higher unemployment rates and lower spending.

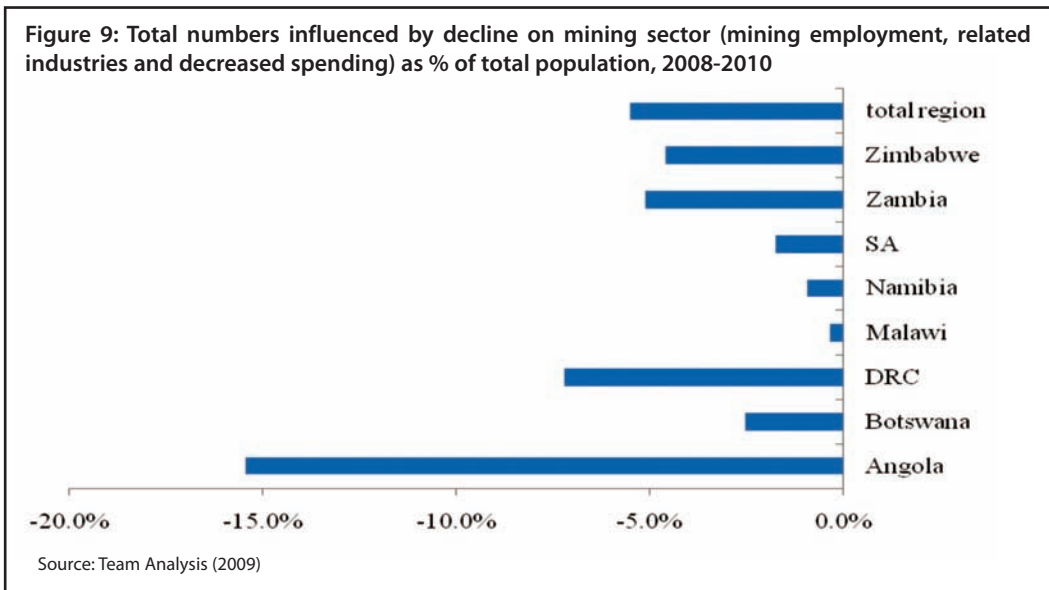
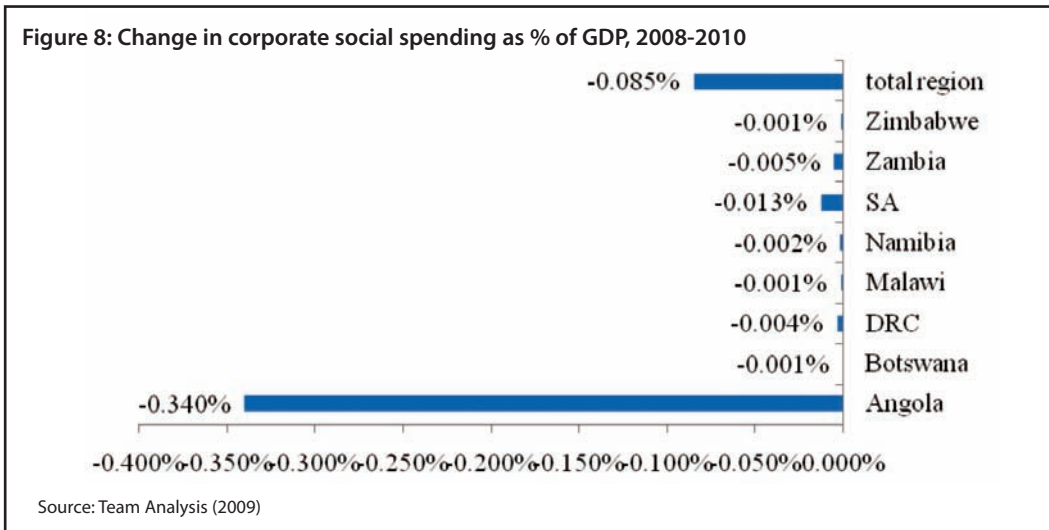
Contracting mining output is expected to have a further impact on output and employment in supply industries to the mining industries; as well as income effects due to higher unemployment rates and lower spending.

- **Reduced government revenues and reserves**

Due to lost mining production, mining royalties paid, as well as lost income due to primary and secondary effects on employment, the region is expected to lose close to 12 percent of government revenue within the next two years. Botswana is expected to lose up to a third of its government revenue between 2009 and 2010, followed by Zambia (22 percent of revenue) and Zimbabwe and Angola (both 17 percent of revenue).

The decline in mineral revenues is expected to adversely affect the regional governments' budget balances, which will have to be cushioned by drawing on the governments' reserves and borrowing. However, given the severity and duration of the global economic slowdown, the cushion provided by regional reserves may not be sufficient to sustain current rates of expenditure. As a result, this may negatively impact on the overall macroeconomic stability of the region as well as the provision of social services.

The table above shows that Zambia and Botswana reserve position in 2007 were quite high relative to GDP, leaving them less vulnerable to external shocks than say, Zimbabwe, the DRC and Malawi.



- **Decreased social spending**

Social spending will be adversely affected by the decline in government revenues and reserves, as many state programmes will need to be reduced or postponed in an attempt to stabilise the national economies. Furthermore, as the companies are experiencing a decline in revenues, the amount of corporate social investment expenditure will also decrease. This will place an additional burden on governments who will then either need to “fill the gap” left by the reduction in private funding, or will need to postpone or terminate some of the social programmes that are currently being provided or planned.

For the total region, it is forecasted that less corporate social spending will decrease with about 0.09 percent of regional output. The largest increases in social spending relative to GDP is expected to occur within South Africa (-0.013 percent of GDP) and Angola (-0.34 percent of GDP).

- **Increased poverty levels**

Forced retrenchments in the mining industry could compound Africa’s level of poverty owing to the high number of dependants living on a single mineworker’s salary. The combined effect of reduced demand of mining supplies, reduced spending and dependents of miningworkers are

expected to involve an additional 9 million people within the region total of 9.5 million (almost 6 percent of the regional population) are expected to be influenced negatively over the short term (2009-2010). In Angola, 15 percent of the total population is forecasted to be affected in this way between 2009-2020, 7% in the DRC and 5 percent in both Zambia and Zimbabwe. In terms of mining employment and its secondary effects, only Botswana, Malawi and Namibia are forecasted to be slightly better off in 2020 than in 2008. The latter could mainly be ascribed to the type of mining commodities they are producing, the price forecasts for the different commodities, as well as the way employment responds to changes in output in the respective countries.

The table 4 below summarises the potential impact of the decline in the mining sector in the region especially within the next 2 years (2009-2010).

The table above suggests that Zimbabwe, Zambia, Angola and the DRC are most vulnerable, while

Botswana is vulnerable to job losses and decline in government revenue. South Africa is exposed to risk due to relatively low foreign reserves and decreased social spending.

Table 5 below summarises the impacts across the various countries analysed and indicates the short, medium and long term impacts of the economic crisis on mining and its subsequent consequences of various factors considered.

- 1) Mainly wage earning employment
- 2) Including from industries linkages, multiplier effects on spending as well as number of dependents on formally employed. A minus sign signifies negative influence.
- 3) For latest available year
- 4) Changes in mining output and employment are compared to decline in forecasts in uranium production planned to commence in 2009

Table 4: Potential impact of decline in the mining sector in the region especially within the next 2 years (2009-2010)

Impact indicator	Angola	Botswana	DRC	Malawi	Namibia	SA	Zambia	Zimbabwe	Total region
Increased job losses:									
% decrease in mining employment	-24.4%	-28.6%	-13.6%	-9.2%	-25.0%	-24.4%	-40.6%	-33.3%	-16.4%
Reduced government revenues and reserves:									
% Decline in government revenue (2009-2010)	-16.7%	-33.3%	-15.0%	-5.0%	-6.7%	-5.2%	-22.2%	-17.3%	-12.3%
Current foreign reserves as buffer									
(% of GDP in 2008)	11.5%	75.2%	1.4%	5.3%	11.5%	9.1%	76.2%	3.0%	11.3%
Decreased social spending:									
Decline as % of GDP	-0.340%	-0.001%	-0.004%	-0.001%	-0.002%	-0.013%	-0.005%	-0.001%	-0.085%
Increased poverty levels:									
% of total population effected by decline in mining production (2009-2010)	-15.4%	-2.5%	-7.2%	-0.3%	-0.9%	-1.7%	-5.1%	-4.6%	-5.5%

Table 5: Summary table of findings

Indicator (2008 unless indicated differently)	Angola	Botswana	DRC	Malawi 4)	Namibia	SA	Zambia	Zimbabwe	TOTAL
Total population (m)	17.5	1.9	64.1	13.1	2.1	48.7	12.2	13.6	173.2
Total GDP (US\$ bn)	95.9	13.3	12.9	4.10	7.8	276.0	15.2	3.3	428.5
Mining GDP (US\$bn)	64.5	5.6	1.7	0.05	0.8	18.0	1.4	0.148	92.3
% exported	93%	65%	90%	75%	80%	65%	84%	30%	85%
Total formal employment (m) 1)	2.5	0.4	6.8	1.2	0.358	11.3	1.5	0.726	24.8
Mining employment (m)	0.09	0.014	2.5	0.012	0.008	0.5	0.064	0.036	3.2
Change in mining GDP (%):									
Short term 2008-2010	-22%	-25%	-28.6%	-25.0%	-20.3%	-23.5%	-34.10%	-34.4%	-22.8%
Medium term 2010-2015	22%	12%	10%	-33%	12.8%	1.4%	3.20%	2.30%	16.6%
Long term 2015-2020	14%	18%	17%	-32%	18.3%	17.1%	15.50%	4.40%	14.6%
Change in mining employment (m)									
Short term 2008-2010	-0.022	-0.0040	-0.34	-0.0011	-0.002	-0.122	-0.026	-0.012	-0.53
Medium term 2010-2015	0.017	0.0015	0.085	-0.0005	0.001	0.006	0.002	0.002	0.11
Medium term 2010-2015									0.00
Long term 2015-2020	0.013	0.0025	0.156	-0.0002	0.002	0.069	0.008	-0.008	0.24
Total numbers influenced (m) 2)									
Short term 2008-2010	-2.7	-0.048	-4.6	-0.0430	-0.019	-0.85	-0.62	-0.62	-9.5
Medium term 2010-2015	1.6	0.021	1.0	-0.0150	0.009	0.04	0.03	0.07	2.7
Long term 2015-2020	1.2	0.034	1.7	-0.0006	0.014	0.42	0.10	0.21	3.7
Total numbers as % of population 2)									
Short term 2008-2010	-15.4%	-2.5%	-7.2%	-0.3%	-0.9%	-1.7%	-5.1%	-4.6%	-5.5%
Medium term 2010-2015	7%	1%	1.3%	-0.1%	0.4%	0.1%	0.2%	0.40%	1.3%
Long term 2015-2020	5%	1.60%	1.9%	0.0%	0.6%	0.8%	0.7%	1.50%	3.4%
Change in tax income as % of GDP									
Short term 2008-2010	-15.9%	-10.0%	-4.5%	-1.5%	-2.0%	-1.3%	-3.0%	-2.0%	-3.7%
Medium term 2010-2015	21%	4%	1.40%	-1.7%	1.6%	0.1%	0.3%	0.2%	1.7%
Long term 2015-2020	0.1%	6%	2.10%	-1.5%	2.1%	1.5%	1.0%	0.3%	2.3%
Estimate of total government revenue (low)	-27%	-33%	-15%	-5%	-7%	-5.2%	-22.2%	-17.3%	-12.3%
Estimate of total government revenue (medium)	35%	15%	5%	-6%	5%	0.4%	17.8%	1.3%	5.7%
Estimate of total government revenue (high)	0.1%	20%	7%	-5%	7%	6.0%	23.3%	20.0%	7.7%
Foreign reserves (UD\$ m) 2007	11 000	10 000	181	217	896	25 000	1 090	100	48 484
Foreign reserves as % of GDP 2007	11%	75%	1%	5%	11%	9%	76%	3%	11%
Change in corporate social spending as % of GDP (2008-2010)	-0.340%	-0.001%	-0.004%	-0.001%	-0.002%	-0.013%	-0.005%	-0.001%	-0.085%
Gini coefficient 3) (=1)	0.64	0.54	0.44	0.39	0.60	0.64	0.61	0.57	NA
Poverty rate (% of population under national poverty income) 3)	68%	46%	56%	52%	67%	44%	64%	56%	NA
% of labour force in informal/subsistence activities or unemployed 3)	45%	48%	73%	81.6%	40.6%	35%	72.30%	82%	NA
% Change in per capita food production 1994-2004	33%	-21%	-19%	-24%	1.7%	9.50%	-1.0%	-6.7%	NA
Food security index 2004 (=100)	116	101	90	84	118	104	100	84	NA
Policy stability index 2006 (=100)	28.4	78.4	2.4	41.8	79.3	51	54.3	11.5	NA

Potential social consequences of the decline in mining sector

Our research and readings have not yielded any findings or records of political and social unrest in any of the eight countries, as a direct result of the global financial crisis and the resultant downturn in the mining sector. This outcome is not incongruous, given that the effects on the mining sector have not been uniform across the region and different sub-industries; and that it is sometimes difficult to distinguish where existing national problems end and the impacts of the global financial crisis begin. However, the potential for social unrest does exist especially if the duration and severity of the crisis deepens.

The potential short- to medium-term social consequences could include:

- **Increased social tensions**

Increased unemployment and rising poverty levels could elevate existing social tensions and frustrations, especially in countries such as South Africa (in light of the 2008 xenophobic attacks) as well as the DRC (where civil unrest is still prevalent).

- **Growing frustration with governments' inability to effectively deal with the crisis**

It should be noted that all eight countries, in varying degrees, have put measures in place to reduce the impact of the crisis, but how effective these policies and their implementation are still remains to be seen. However, if regional governments fail to adequately protect the growing numbers of economically vulnerable people within the society and to extend the social safety nets in the likelihood of reduced aid, then the chances of social unrest increase dramatically in line with rising

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR

Dr Keith Jefferis (renowned economist and E-consult Managing Director) 05/01/2008

"One of the fundamental components of this current crisis is risk aversion and mining is an inherently risky business... I am concerned that while there has been a lot of good results announced by prospecting companies in Botswana, these firms might find it difficult to get their projects to the mining stage.

"This week, Discovery Metals, which is prospecting for copper and silver in Maun, announced that their exploration was going on very well and at the same time that they will need \$200 million to develop the mine. Now personally, I think they are going to struggle to raise that money. The combination of risk aversion and the weakening of commodity prices are going to make it very difficult for mining companies...Some of these new mines that we thought were going to come on stream might be deferred and might come in at a later stage,"

Jack Tlhagale, Secretary General of the Botswana Mine Workers Union (BMWU) 23/02/2009

"The situation is now very bad, very bad for workers. It is no longer about the workers alone, it is about the government, the companies, everyone. We need to talk. Dialogue is the only solution."

Ben Alberts, African Mining Expert 23/03/2009

"This year will be a difficult one for the platinum, chrome and manganese industries in South Africa. However similar to the 1975 and 1983 contractions in the market, the downturn will hopefully not last too long. It is anticipated that the industry will start to pick toward the end of the year due to growing demand and government investment in infrastructure that will benefit the mines.

The lag in the diamond industry in Botswana is expected to last for the next 6 to 8 months, before demand picks up again...However, the coal industry will be negatively impacted by the delay in the construction of the railway line that has been postponed due to the prevailing economic conditions.

The biggest problem in Zimbabwe is the poor condition of its infrastructure. However, if the country's internal conditions improved; there would be a demand for products the country produces.

The dropping of the windfall tax in Zambia was a very positive measure and will ensure continuous growth of the industry. Zambia produces copper at relatively low costs and therefore may be better able to survive the lower market prices compared other lower grade mines operating in the rest of the world.

In recent years, there have been improvements in economies in Africa because of the mining industry, and since most of the mining companies are assisting their employees in the downturn, no major social problems are expected as a result of the current market conditions.... People and companies that are serious about the continent's mining future will not move out. In fact current conditions present opportunities for companies to acquire assets at reasonable prices."

Punie Gongoro, Senior Theatre Sister, Jwaneng Mine Hospital (17/03/2009)

"For a lot of Debswana employees the effects of the Global Financial Crisis have been very sobering. For the longest time employees tended to believe that things would never go wrong. They would get their annual bonuses as usual and Debswana would forever remain the employer of choice. This attitude bred a sense of complacency and many people did not plan for such an eventuality. The reality now is some may be out of a job without having build homes, and those that do remain employed are having to adjust their spending habits following the recent reductions in salaries. I work at the Jwaneng Mine Hospital and ever since the onset of the crisis the Psychology ward has been very busy."

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR (Continued...)

Reint Dykema, Mining Spokesperson from Solidarity Trade Union 03/2009

Solidarity's research shows that so far an estimated 16 099 permanent employees and 8 429 contract employees are affected in terms of job losses in the mining industry in South Africa. In addition another 15 000 mine employees will lose their jobs if the liquidation at Pamodzi Gold goes ahead. Chrome mines have tried to minimise job losses through various means, yet an estimated 1000 people may lose their work within the next two months. This brings the total job losses in the mining industry in South Africa to 40 528 in a matter of 6 months.

The worst affected mining companies are those in the platinum and diamond industry, whilst coal, gold and iron ore mining are faring better, with far less retrenchments due to the current economy. Solidarity assists to reduce social impacts due to retrenchments in the following ways:

- Solidarity is the first trade union that has completed a social plan to address the socio-economic impact of job losses.
 - Solidarity's social plan is specifically aimed at this consultation process and proposes a legal framework and suggestions for effective communication during the process to enhance labour relations.
 - The plan also sets out specific support that Solidarity offers its members in these circumstances. Solidarity offers support to members by means of its own national personnel agency (Express Employment Professionals), its social support organisation (Helping Hand) and its technical training college (Sol-Tech). The trade union furthermore established the institution Career Clinic, in conjunction with Growth-Link, which supports people affected by retrenchments with financial planning, trauma therapy, career counselling and investigation into training en developments possibilities.
- Solidarity is represented at and takes an active role, in the Department of Mineral and Energy (DME) task team which, with other unions, the DME and Chamber of Mines, find ways to address short and long terms impacts of the current economic situation.
- When Aquarius Platinum retrenched 1950 workers at its Everest mine in December 2008, Solidarity was a key player in negotiating 13 weeks' salary retrenchment packages for employees of which most were only in Aquarius' employment for a year. Within the mining industry, two weeks' salary per years worked, is the going norm as a retrenchment package.
- Solidarity also assisted Aquarius in setting up a facility to assist workers to find new placements. Aquarius assisted the affected employees by providing a facility and paying the salary of a retrenched worker to coordinate finding positions for those who had lost their jobs.
- Mines in South Africa function under new order mining licenses which require Social and Labour Plans and requires informing the DME of planned retrenchments. Solidarity ensures that mining companies know about this requirement, abide by the regulation prescribed in Section 52 (1) and negotiates accordingly for their members.
- In many instances Solidarity sets up funds to bring relief to workers affected by retrenchments which also include feeding schemes. Additional assistance include:
 - Mobilising funds from charities to support laid-off workers.
 - Helping laid-off workers to find new jobs through use of recruitment agencies.
 - Re-training workers in new skills to enable them to find new jobs more easily.
 - Providing financial advice to laid-off workers to enable them to survive on their savings or UIF-income for a period that is as long as possible.
 - Mobilising psychologists and social workers to provide counselling to laid-off workers.

On the question of what mining companies could do differently to prevent job losses in economic down turns, the following response holds lessons for the future:

Companies with sound management practices, sound long term planning, good financial management, a continued focus on efficiencies and good HR and labour relations, fare much better in similar economic conditions and have little or no current retrenchment - even in the same industry and mining the same commodity.

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR (Continued...)

Dr. Ruth Amunjela, Occupational Medical Practitioner and a previous Chief Medical Officer of Namdeb Diamond Corporation (Pty) Limited 03/2009

Since December 2008 I have seen approximately 750 employees from 3 different mining industries in Namibia for exit examinations due to them losing their jobs. This number excludes approximately 800 to 1000 in one of the companies. My estimation is that around 2000 people have lost their jobs in the mining industry up to date.

The employees' approaches vary in approaching the situation to find an alternative work or an income. Depending on experience, size of the severance package and length of service mainly. In this situation, the worst affected employee is the young inexperienced one with a short-term service history. The Namibian Government has included tax relief initiatives in their current budget. This does not in any way benefit this latter employee because his package is too small.

In general most of them have interesting initiatives of starting up small businesses. Those with a good length of services and good packages will invest part of their packages in starting up small businesses.

It is interesting that there is so much creativity and innovation, e.g. one would buy a truck and transport goods to some of the neighbouring countries and another would buy commodities and sell to some neighbouring countries that have no such commodities. However, this is only of benefit to those with long service histories and relatively good retrenchment packages converting this into viable spin-offs. But, in a society with low disposable incomes, these as good as they are, may sadly never progress into profitable businesses.

Mining Companies and the Government could have assisted people in this situation in various ways. In my view, the fact that some of the industries are still doing well, such as gold, platinum and uranium, the public and private sectors could have agreed in principle to make sure that those employees should be absorbed into these industries when vacancies are available.

Training should also have been provided in order for them to deal with the situation better.

In preventing job losses public and private sectors ought to have had prior discussions between themselves before to collectively deal with the situation. This economic crisis is not an economic breakdown. It is temporary and the economies will recover. The social costs and consequences are very expensive and these were not considered appropriately and should have been avoided at all costs.

Because of the consequences of reduction in spending power, all disposable incomes and businesses such as financial institutions will suffer as a result of:

- Increased levels of poverty
- Increase in criminal activities
- Increase in alcoholism
- Increase in HIV/Aids
- Overload of public amenities such as hospitals and prisons
- Poor health care
- Negative impact on tax burden

The public and private sectors should have:

- Communicated openly both between themselves and among the affected employees to collectively address the situation and alleviate fears created by the situation leading to suspicion and lack of trust.
- Created financial or economic safety nets e.g. provide capital and investments into small medium enterprises (SME's) to create jobs.

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR (Continued...)

- Saved for a “rainy day” (miscellaneous funds); unemployment funds - shared social responsibilities by business and governments: e.g. the business pays a percentage of the income (50-60%) and the government supplements the rest of the balance. Some benefits could have been temporarily frozen and employees could have still been employed.
- Considered production to stockpile and sell later with market recoveries.
- Another adverse consequence is out-migration of skilled personnel to those countries that can absorb them. This will have dire consequences when markets recover.

Sandy Murray, previous Group SHER manager: Aquarius Platinum Limited 04/2009

“I was employed for approximately two years as the Group SHER manager at Aquarius Platinum Limited and was given notice of retrenchment of my and my whole team during December 2008 due to cost and financial pressures on the company as a result of the economic crisis and reduction in platinum prices.

The company mainly uses outsourced mining contracting firms to undertake its mining activities and was of the opinion that these companies should take care of safety of their own employees.

The retrenchment did not only affect me. Not only did I have to deal with the planning and the uncertainty of my own future, I also had to support those employees reporting to me. The biggest impact of being retrenched is that one’s self belief is negatively affected and questions such as – “Am I good enough? What did I do wrong? Will my career get back on track?” – linger in your mind and it takes about six months to lift your head and carry on.

In a personal capacity, I immediately started to send out my CV and was fortunate due to my networks, skills and experience, to go for a number of interviews which kept my spirits up and eventually found another position at a good company within a course of three months.

During the time of retrenchment and looking for another job and dealing with affected employees in my team, a lot of strain is put on one’s financial planning, emotions, personal relationships and self belief. I was fortunate to have received a retrenchment package of 6 months salary which was negotiated during the acceptance of my employment. I mainly found support from family and friends during this time.

The company did not offer counselling, but tried to offer alternative employment within the company, but at lower levels and salaries. However, given the financial situation within the company, this was limited in terms the number and scope of positions available. I helped the members in my team through providing moral support and references for them to find other employment. Most of them found other work within a relatively short space of time, but older employees struggled more. It was really hard to see how the team that had worked for me “suffer” through this experience, some members were single parents, others had just enrolled their children into higher education and others did not really know what to do next.

I understand that when the economy impacts on companies that they have to respond in some way to ensure the longer term sustainability of the company. Working in the mining industry for most of my life, I do not see sufficient planning on companies’ part to “soften” impacts of economic down-turns on employees and prepare their employees for what is about to happen. Mining companies normally know in advance when things are becoming worse and do not prepare employees for this. Companies should advise employees early to “Get their house in order” e.g. keep their CVs up to date, have alternatives in store, handle their personal finances better and save for approaching times. It is often the case that complete families work for a mine and if they lose their jobs at the same time, the impact is just so much worse, as whole family entities do not have an alternative income.

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR (Continued...)

When companies are forced to retrench, the biggest need is to offer counselling and advice on how to deal with financial matters e.g. wise use of retrenchment packages and making alternative arrangements with banks for repayment of debts. They should also offer assistance to affected employees on how to find other employment, where to apply and how to prepare a good CV and how to deal with job interviews. Employees on the other hand, should realise that mining is cyclical, have a "game plan" with alternatives if the downturn kicks in and "save for the rainy days".

My advice for people going through retrenchment is for them to keep believing in themselves, remain positive, immediately start looking for a new job, manage their finances well and reach out to family and friends. Mining has always had its ups and downs and normally things improve. Africa and its people must learn to always be prepared for the good and bad times and make sure mining companies do the same."

Quintin X, previous contract worker with Lonmin Plc 04/2009

"I was employed through Allround Mining to work at Lonmin and on 9 February 2009 after completing my shift, I was told that *"The work is finished"* and should not return to work the next day, although during December 2008 we were told that our contract would finish in June 2009. So, my ex-colleagues and I could not plan for alternative employment. During November 2008 we heard rumours that contracts would be stopped due to financial pressures, yet nobody officially communicated that to us. During January 2009, certain workers were just not given transport to work and after three days were seen as "AWOL" and lost their jobs.

Losing my job had a huge impact on me as I am the breadwinner and have three children to care for. Contractors do not get retrenchment packages and therefore do not have a buffer against such events. Overtime I had worked, was also not paid out and I had to take the case to the Commission for Conciliation, Mediation and Arbitration to ensure that I receive the monies owed to me, which I was told would only be paid in June 2009.

I have not found other employment, as mining companies are not employing at the moment and I struggle to make ends meet by doing security and handyman work for businesses and farmers. I pay school fees through work I do for the school.

Many of my friends and ex-colleagues are not so lucky and are really suffering to care for their families because unemployment payouts through the government do not even cover food costs of a family.

The way contractors were treated during these times are appalling. Same day notice was given, overtime was not paid out, others were "forced" to resign, whilst others were not given transport for three days' in a row and then seen as absent without leave, with no "fall back".

I would suggest that mining companies do more to help workers who are retrenched, including contractors employed through labour brokers or contracting firms. Companies employ workers through labour brokers because they (*the companies*), do not have to pay retrenchment packages and other benefits to workers. Mining companies have for so long enjoyed the benefits of the mining boom, yet when things go "bad" they just let people go with no advanced warning and in very "*inhumane*" ways.

Mosa Mabuza, public interview of head of the Task Team (MIGDETT), and Acting Deputy Director in the Department of Minerals and Energy Mining in South Africa, 02/2009

"We are gravely concerned about the 24 hour notices that are currently being given by some mining companies to contractors employed in the sector. We urge these companies to refrain from these kinds of silver bullets, as they adversely affect the contracted employees and their dependents.

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR (Continued...)

Ever since the task team was established, at the height of the turmoil in the global markets, it consistently urged companies to use retrenchment of both their permanent and contract workers as a last resort and that this should be in full compliance with the laws of the land.

The Task Team has also stated that it is aware of some deviations from the social and labour plan commitments which formed the basis for the granting of mineral rights.

There is a conspicuous lack of financial provisions to fulfill such commitments is under scrutiny, particularly by those companies that are retrenching employees in the context of the current global financial challenges.

The Task Team continues unabated to engage in short, medium and long term interventions in order to ensure the sustainable and continued growth of the mining industry in South Africa"

Johannes Wagner, 83 years old, retired. Reminisces of the Great Depression of the 1930's and what governments can do to help people without work during times of large-scale economic depression, 04/2009

"I was seven years old in 1933 when my father lost his farm because of the depression and drought. We were a family of 9 children.

There was not much employment to be found. There were large scale retrenchments by mining companies, factories closed down, farmers were without farms and people really struggled. The government initiated various job creation programmes, including farming initiatives and starting large-scale capital projects such as building dams and roads to create jobs for people affected by the depression. After we lost our farm, my father was employed at one of the dams being built by the government. He worked for 2 pounds (about R20) per week, we lived with family members on a farm and he travelled to work on a bicycle. Once the construction of the dam was complete, we were again "rescued" by the State, this time large plantations were started by the government to provide people with jobs and an income. This time we lived in a state-owned, corrugated iron house on the plantation estate owned by the State.

Around 1937 the government allocated smallholdings to people who were able to farm. The State provided these properties with basic housing, no running water or electricity at the time, but also provided irrigation, seeds for farming and basic farming equipment for people to make a living of the land. In return, my father had to pay rental from the income he made from his crops.

My parents were able to buy the land from the State when the economy improved and from income they raised by farming. My parents lived on this smallholding for the most of their lives.

Even though we were very poor, as children we never went hungry. The government provided soup kitchens at schools and at home my mother kept chickens for meat, a cow for milk, grew maize, vegetables and fruit for us to eat.

During times of illness, my mother was the "nurse and doctor" and basic medicines such as Vicks and Lennon's medicines were used to ease any illness we had. We did not get ill very often, because our diet was healthy and we got much exercise from walking miles to school and back. I can remember being immunised for polio, but there was no such thing as going to the doctor and women in those days, gave birth at home, with the help of a mid-wife. The first time I went to a doctor, was when I started work and was able to pay for myself.

DIALOGUES WITH REGIONAL STAKEHOLDERS TO DETERMINE THEIR PERSONAL AND INSTITUTIONAL RESPONSES TO THE DOWNTURN IN THE MINING SECTOR (Continued...)

Schooling and school books during these times were free and provided by the State. My parents managed to ensure that all of us finished school. We all studied by candle-light at night. If we were interested in tertiary education, we had to do that part-time, because it was expected that the older children should start work and support the rest of the family.

At 83 years, I feel blessed to have lived through these hard times. I look back at those years and know that today's generation can look back at these times and see that it is possible to survive with very little, but still reach great heights - like my cousin - who became the first surgeon in the world to transplant a heart. Eventually I spent 43 years in banking of which 14 years as a Bank Manager, during which time I believed in other people's dreams made many clients millionaires, the last seven years of my career as a Bank Auditor, I ensured compliance to rules to protect the banking industry from losses. My wife and I had four children, all of them successful at what they do and now making contributions to today's society because of the values we learned as children and we taught them.

I am also grateful that the government at the time of the Great Depression had the foresight to initiate measures to help people in need, which ensured "building" the country for "tomorrow". Those dams, plantations, roads and smallholdings are still there and now serve the generation of today. I hope Africa's governments have the same insight during the hard times we face now.

Angola

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GDP	Mining industry value (US\$bn)
	2005	3.23	1.06
	2006	5.87	2.59
	2007	4.57	3.06
	2008	5.50	4.92
Total number of people nationally employed by the mining and oil industry (2008)	90,000 (2.6% of total employment)		
National Employment dependency ratio	6.1		
Main mining sectors	Diamonds Oil Iron Ore Gold Copper Uranium Other: Manganese, Phosphates, Lead, Zinc, Tin, Wolfram, Tungsten, Vanadium, Chrome, Beryllium, Kaolin, Quartz, Gypsum, Marble		
Total mining exports	93% of mining output is exported Kz 4851bn (at 2008 current prices) 67% of total exports (at 2008 current prices)		
Current account balance	Kz 2500 bn (US\$33 billion)		
Main export markets	US China Portugal Brazil France South Africa		
Major mining companies operating in the country	Endiama Sociedade Mineira de Catoca Sociedade de Desenvolvimento Mineiro ITM Mining Limited		
Government revenue from oil as a % of government income	38%		

Summary Table (Continued...)

Community Social Investment as % of total revenue (selected listed companies)	0.9%	
Companies that have closed / suspended their operations or might do so in the near future	Angola's Catoca mine (reduced production in 2009 and has stopped its exploration activities since December 2008).	
Has there been any recorded political or socio-economic unrest as a direct result of the downturn in the mining sector?	Yes – in January 2009, some 130 workers of subsidiary of Angolan state-owned diamond company Endiama went on strike demanding higher wages	
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	Yes – the Angola government has requested that companies should reduce the number of foreign workers in the country as a cost-cutting measure to fight the ongoing crisis in the sector. Furthermore, the Angolan Government has outlined a set of strategies to handle the effects of the world economic and financial crisis on the country, which requires investments in agriculture, industry, geology and mining, and creation of growth points around the country.	
Impediments to mining industry (in addition to the global financial crisis)	<ul style="list-style-type: none"> • Logistical difficulties • The possibility of social unrest remains, if high growth and abundant oil revenues fail to trickle down to the masses • Inflationary pressures persist, due to expansionary fiscal policies and a loosening monetary stance • Dutch disease' remains a threat, as oil exports lead to currency appreciation, hence eroding the competitiveness of the domestic export 	
Other socio-economic indicators*	Unemployment (% of labour force)	25%
	Poverty (2001) (% of population below national poverty line)	68%
	Food security: per capita food production (2004)	116
	Gini coefficient (2005)	0.64
	Political stability (2006)	28.4
	HIV / AIDS prevalence rate (% of population) (2008)	2.1%

Source: BMI (2008)

* Definitions of all socio-economic indicators can be found in Appendix B

Overview of the Mining Sector²⁰

Angola's main mineral products are oil and diamonds. Despite being disrupted by over 27 years of civil war, the mining industry provides the nation with the bulk of its foreign earnings. The oil sector alone accounts for more than half of the country's GDP and at least 90% of its export revenues.

With only 40% of the country's territory surveyed, Angola remains one of the least explored, mineral-rich countries in Africa. In addition to its growing oil and diamond mining sector, the coun-

try also has commercial deposits of iron ore, manganese, phosphates, copper, gold, lead, zinc, tin, wolfram, tungsten, vanadium, titanium, chrome, beryllium, kaolin, quartz, gypsum, marble, ornamental stones and uranium.

The major mineral resources found in Angola are discussed below.

- **Crude oil**

The Angolan minerals industry is dominated by its oil production and it is currently sub-Saharan Africa's second largest oil producer behind

Nigeria. Most of Angola's oil production is located off the coast of Cabinda, with the region accounting for more than half of the country's output. The bulk of the country's oil reserves are located in deepwater offshore oil fields, and a new offshore licensing round in December 2005 attracted record bids from international companies not yet involved in a large scale in the country's booming deepwater segment. Angola's crude oil is generally of high quality, with a low sulphur content that makes it popular with US refineries. Angola exports more than 90% of its crude oil, primarily to China and the US.

Angola is also a producer of natural gas and the country plans, through their liquefied natural gas (LNG) project, to produce five million tons of gas annually by 2012. With this project, the Angolan government wants to reduce the burning of gas produced from oil exploration.

- **Diamonds**

Angola is the world's fifth-largest diamond producer by value and the third-largest on the continent after Botswana and South Africa, supplying 7-9% of the world's output. But such is the abundance and high quality of its diamond deposits, that the country could effectively lead global rough diamond output.

Angola's diamond reserves are separated into two categories: primary or kimberlite and secondary or alluvial. The country's known diamond fields extend in a large path through the north east, but are also found in the central, south-eastern and south-western parts of the country. The country has more than 700 known kimberlite pipes of which only a few are known to be diamondiferous and commercially viable. Diamond reserves are estimated at 180 million carats.

Previously, the under-development of Angola's diamond sector is largely the result of massive artisanal production outside of state control, the protracted civil war and government corruption. Angola's diamond industry came under the spotlight following the implementation of the Kimberly Process that was set up to deal with conflict diamonds. It is a widely accepted fact that the civil war has been funded, to a large extent, by the trade of rough diamonds, especially by the rebel group, UNITA. However, since the end of the

civil war in 2002, the government has been trying to bolster this industry, which is believed to have great growth potential. In recent years, this industry has picked up, and many international diamond mining and exploration companies are currently investing in exploration and mine development programmes in Angola.

- **Other Minerals**

The Maiombe region of Cabinda province accounts for 90% of **gold** production in Angola. Small scale alluvial gold mining operations are active in the tributaries of the Luali River in Central Cabinda, with other alluvial gold deposits in the Cuanza Norte, Huila and Cunene provinces. The Mpopo deposit is the largest primary gold deposit in Angola, some 36km south-west of Cassinga. Most of the gold mining is artisanal in nature, but Ashanti Gold Company Limited and Anglo American Plc have been involved in prospecting.

Platinum has been reported in association with the norite complexes in the Cunene Complex in South-western Angola.

Copper production has largely been from high-grade ore mined in the Tetelo-Mavoio Bembe region. The occurrence of lead and zinc has also been reported in this area. Copper deposits of potential economic value occur in the coastal plain (Cachoeiras and Loeto Deposits). Copper has also been identified in the Menongue district situated in south-eastern region of the country.

Most of the **iron** that has been mined in the past in Angola has been from the Cassinga Mine in Huila province, where the high grade portion of the reserve has largely been depleted. The production of iron ended due to a slump in global iron ore prices and the onset of the war, which saw the destruction of the rail link connecting Cassinga to the port of Namibe. Rehabilitation of the Cassinga mine by state-owned iron company, Companhia de Ferro de Angola (Ferrangol), was completed in 1986, but production never recommenced.

Numerous small **manganese** deposits occur scattered throughout Angola. The most economical is known as the Lucala manganese triangle, and is situated in Cuanza Norte and Malanje provinces.

Numerous small manganese deposits occur in this region, concentrated in alluvial or near-surface deposits.

Good quality **red and black granite** is exported from Angola. These rocks occur in Namibe and Huila provinces in south-eastern Angola. After diamonds, the development of Angola's stone industry is a priority for the Angolan Ministry of Mines. This sector has recently experienced rapid growth with exports of black granite nearly doubling over the last few years. Studies suggest that the region can sustain an annual output of 5 000 m³ of marble over a period of twenty years.

Substantial **phosphate** resources have been found in Cabinda and Zaire provinces. The Angolan Government established a company to exploit the known phosphate resources located in these areas, where resources were estimated to exceed 200 million tons.

Overview of the Major Mining Companies²¹

The mining industry in Angola is dominated by diamond exploration and production, and there are currently more than 15 multinational diamond mining and exploration companies. The country has a hard rock mine and about seven alluvial mines producing diamonds. The existing regulatory structure awards mineral rights exclusively to state-owned diamond company, Endiama, with major foreign enterprises having to form Joint Ventures (JV) with the company.

Table 6: Angola's prominent mining companies

Mining Company	Commodity
Sonangol	oil & gas
CABGOC	oil & gas
Total Angola	oil & gas
Eni Angola	oil & gas
Esso Angola	oil & gas
BP Angola	oil & gas
Endiama (Empresa Nacional de Diamantes de Angola)	diamonds
Sociedade Mineira de Catoca	diamonds
Sociedade de Desenvolvimento Mineiro	diamonds
ITM Mining Limited	diamonds

The country's oil and gas sector is state-controlled, and the main government vehicle is Sonangol, which accounts for around 40% of the country's oil production, most of the country's gas supply, and owns shares in domestic refining and distribution businesses. IOC?? involvement is extensive, but in partnership with the state using a production sharing contract approach. Key partners are US-based Chevron and ExxonMobil, Britain's BP, Total of France, Italy's Eni, Norway's StatoilHydro, plus Brazilian state firm Petrobras.

Brief profiles of selected companies are provided in Table 7 below:

Table 7: Profiles of selected mining companies

Mining Company	Commodity	Description and Recent Developments
Sonangol	Oil & Gas	<ul style="list-style-type: none"> Company activities include co-ordinating and controlling all petroleum activities, supplying petroleum products to the domestic market, marketing and export of petroleum and crude oil products. It operates an airline subsidiary that provides support to its petroleum operations. Sonangol also participates in a series of JVs with international contractors that provide related services to the oil and gas sector. The company has operations in numerous other Africa countries such as: the Democratic Republic of the Congo, São Tomé e Príncipe, and Cape Verde The recent announcement that Angola is now China's largest supplier of oil is encouraging news for Sonangol.
CABGOC	Oil & Gas	<ul style="list-style-type: none"> Chevron operates in Angola through its wholly-owned subsidiary CABGOC. The company has interests in four concessions: Block 0 (39.2%) and Block 14 (31%), both of which it operates, plus Block 2 (20%) and the onshore block Fina Sonangol Texaco (FST – 16.3%)

Profiles of selected mining companies (Continued...)

		<ul style="list-style-type: none"> • Chevron has a 36.4% stake in the Angola LNG plant, construction of which began in 2008, with completion scheduled for 2012 • Construction began on Angola's first LNG plant in 2008. Chevron and Sonangol are co-leading the project. The US\$2bn scheme will draw associated and non-associated gas from eight offshore blocks that contain an estimated 270bcm of gas
Endiama (Empresa Nacional de Diamantes de Angola)	Diamonds	<ul style="list-style-type: none"> • Endiama is the national diamond company of Angola. It is the exclusive concessionary of mining rights for diamond-mining in Angola. • Endiama's business encompasses all aspects of diamond-mining from the prospecting, research, finding and recognition of diamonds through to the extraction, treatment and commercialisation • <i>In February 2009, the company announced that it expects to increase production to around 10.5mn carats in 2009, on the back of new discoveries coupled with higher demand from China and India</i> • <i>However, since the drop in market prices, the state is considering the options of buying its own diamonds in order to help companies weather the crisis</i>
Sociedade Mineira de Catoca	Diamonds	<ul style="list-style-type: none"> • Sociedade Mineira de Catoca operates Angola's only official kimberlite mine, the Catoca kimberlite, 35km south of Saurimo, in north-east Angola • SMC is 32.8% owned by state-controlled Endiama; 32.5% by the diamond player, Alrosa; 16.4 % by Odebrecht; and 18% by Israel-based Daumonty, a firm owned by Leviev • SMC operates the Catoca deposit, the fourth-largest kimberlite mine in the world. The mine's production is 35% gem quality, compared with a global average of 20% • The company installed a new processing plant in 2005 • <i>In February 2009, the company announced it would reduce its production for this year, and stopped its exploration activities in December 2008. Both steps are a result of the sharp decline in global demand for gemstones.</i>

Sentences in italics represent the direct impact the global financial crisis has had on the company

Government role in the mining sector²²

The Ministério de Geologia e Minas is the government entity responsible for the negotiation of mineral rights contracts, for enforcing mining laws, and for conducting geologic surveys. All mineral rights in Angola belong to the state, and all mining and prospecting contracts must be approved by the Council of Ministers. Corpo Especial de Fiscalização y Segurança de Diamantes is the government agency responsible for overseeing the diamond sector. Endiama's subsidiaries include Sociedade de Comercialização de Diamantes de Angola, which is in charge of the marketing, sale, and trade of all diamonds produced in Angola and the entity responsible for Kimberley Process compliance; and Endiama Prospecção e Produção S.A.R.L., which oversees all Endiama's mining and prospecting interests. Sociedade Nacional de Combustíveis de Angola

(Sonangol) is the overnment-owned company responsible for petroleum exploration and production.

In July 2007, President José Eduardo dos Santos announced the formation of the Inter-Ministerial Commission for Protection of Diamond Resources to promote and preserve natural resources and to guide mining and development activities for the benefit of the community. The commission's responsibilities will include: the elaboration of plans to expel illegal diamond miners and repatriate illegal foreigners; border control; the creation of agricultural co-operatives for arts and crafts; and the integration of former illegal miners. It will specifically look at identifying areas where illegal prospecting of diamonds, metallic minerals and rocks takes place. It will then outline a comprehensive plan to tackle the

problem. The commission will also draft plans for defining and limiting the areas for artisanal exploration, registering and licensing small mining groups.³

Angola's state-run Agência Nacional para o Investimento Privado is running a campaign to attract more foreign investments to the country's already important mining sector. Further, the World Bank and the British Geological Survey have been assisting the government with the promotion of its minerals industry, including with the drafting of new mining laws.⁴

In anticipation of the coming fiscal crisis, the government has indicated that it will substantially revise its expansionary 2009 budget, which had proposed increasing expenditure by 43% compared with 2008, to Kz3.18trn (US\$42bn). In mid-January 2009 the ministerial council announced that it had approved a reduction in the budget's oil price benchmark, previously set at US\$55/barrel, and that it had adjusted government spending for the first quarter of 2009 accordingly. However, no details have been released of the new reference price or where the spending cuts have been applied, and these are unlikely to emerge until a revised 2009 budget is presented to the National Assembly in the next few months.

The Angolan government has however outlined a set of strategies to handle the effects of the world economic and financial crisis on the country, which requires investments in agriculture, industry, geology and mining, and creation of growth points around the country. The programme on the industry provides for the establishment of growth points in all provinces of the country. The industry ministry will evolve into industrial ventures in all provinces, aiming at the emergence of construction materials and equipment of support to agriculture and thus increase production and reduce imports.

As to the geology and mining sector, government intends to diversify the sources of revenues, through boosting mining activity, involving the exploration of other minerals and thus put an end to the diamonds monopoly, with the programme encompassing all activities of the sector, both diamond and non-diamond. Furthermore, the gov-

ernment has designed several social projects, with focussing on the reconstruction of the country, and construction of infrastructure (including houses), which requires raw materials provided by the mining industry.

Impact of the Global Financial Crisis on the Angolan Economy and its Mining Sector²⁵ **General**

Concerns are growing that state revenue from oil could collapse in 2009, triggering a fiscal crisis. It is anticipated that the imposition of OPEC production cuts and lower international oil prices could reduce government revenue by as much as 50%. Despite the savings made by the government over the past four years, during which it has run large budget surpluses, it will need to rein in spending on its more ambitious social projects, such as its election pledge to build one million new houses over the next five years.

Angola's economic partners have begun to recognise the seriousness of the economic downturn facing Angola as a result of lower oil output (caused by OPEC cuts and lower crude oil prices) and the expected fall in public investment. In January 2009 the World Bank predicted that the country could go into recession in the second quarter of 2009 and would experience negative real GDP for the year as a whole. For the Angolan government, which has prided itself on overseeing five years of sustained economic growth, and for the Angolan president, who is likely to seek re-election over the next year, the admission that the economy is in recession is extremely damaging. For this reason the government is still forecasting real GDP growth of 11.8% in 2009, although this forecast is likely to be reduced in the revised 2009 budget.

The impact of the global downturn on mining investment has affected Angola's previously booming diamond sector, which is facing a difficult year. Plans to expand investment at the largest kimberlite mine at Catoca have been suspended indefinitely, while several foreign mining companies have pulled out of exploration projects, most notably South Africa's Petra Diamonds, which withdrew from its Alto Cuilo diamond exploration project in Lunda Norte province last December. In an attempt to revive investment, in January the national diamond company, Endiama,

held a road show in Paris as part of a new marketing strategy to persuade investors to treat diamonds as a store of value, much like gold is viewed in times of economic crisis.

The subsequent fall in confidence among international diamond companies has forced the government to cancel plans to host the World Diamond Summit in Luanda in November, further setting back its plans to make Angola one of the most important diamond producers in the world.

The political measures put in place by the Government to counteract the economic-financial recession were not a reflection of the real status of the Angolan economy which depends greatly in the exports of oil and diamonds, and not in the internal production and consumption of goods and services. Food prices, medicines and services have gone up over 12% and salaries for the public service delayed for months now. Government sources affirm that inflation stands at 13%. There is also a 40% reduction in public investment and unemployment stands at 40% with most infrastructure constructions in a standstill. There is an official suspension "sine die" in the construction of the new international airport but instead the Government is putting USD70 millions to remodel the old one in order to accommodate the Africa Cup of Nations in January 2010.

The diamond sector is practically the main one in which the negative effects of the economic-financial crisis is so visible. Many diamond companies are almost non operational and others have cut production 40% and 60% and in a desperate move the Government had started buying the production using its foreign exchange reserves but proved not sustainable. National and foreign investors are faced with difficulties of selling. Many young people who were engaged in "illegal" diamond mining have abandoned the job because there are no buyers and the stones have almost become worthless. Most of these youths have moved to the border with DRC to do business and soon tensions may rise as people in both countries start fighting for the scarce space, opportunities and resources. Life in the diamond rich provinces is deteriorating much faster than in other provinces. Infrastructures are collapsing, acute shortage of water, electricity and medicines. Due to their distance from the main sea ports food prices have increased tremendously and it is scarce.

According to the Africa Monitor (375) the challenges that affect the diamond economy are not yet reflected with intensity in other sectors. But it is already being seen in the actions of the Government and in the behaviour of the ruling elite who have been controlling the diamond industry and now are having less cash to spend.

Table 8: Forecasted impact of the global financial crisis on the Angolan economy and its mining sector (2009 to 2020)

VARIABLE	2008	2009	2010	2015	2020
Mining & oil GDP (2000 prices) Kzbn	147	111	115	140	159
Mining & oil employment (000)	90	65	68	85	98
Mining GDP (% real change) Kzbn		-24.8	3.6	21.9	13.5
Mining employment (% change)		-28.0	4.3	25.7	15.4
Changes in mining output due to Global financial crisis (Kzbn) 2000 prices		(36)	4	25	19
Changes in mining employment due to Global financial crisis (000)		(25)	3	17	13
Expected indirect impact on GDP(1) Kbn		(36)	4	25	19
Expected indirect impact on employment (1)		(322)	36	222	167
Total GDP change (K z bn) 2000 prices		(72)	8	50	38
Total employment change (average Angolan economy)		(347)	38	240	180
Change as % of GDP		-25.6%	2.5%	15.0%	10.0%
Change as % of formal employment		-13%	1.2%	7.3%	4.9%
Number of dependents: formal employed		6.1	6.1	5.5	5.5
Number dependents affected by changes in employment (000)		2 116	235	1 319	991
Total number people affected by changes in mining output (employed + dependents)		2 463	196	1 559	1 171
Population (000)		17 980	18 485	21 233	24 179
Total number affected above as % of population		14%	1%	7%	5%
Change in social corporate investment spending (Kbn) 2000 prices		(2)	0	2	1
(A) change in tax income (Kbn) 2000 prices		(4)	0	3	2
(B) change in oil revenues to government (Kbn) 2000 prices		(2)	0	1	1
% of (A) and (B) effect on total tax income		-35%	3.5%	21%	0.05%

(1) due to industry linkages and secondary spending effects

Anticipated Short-, Medium- and Long-Term Impacts of the Crisis on Angola

Using a high-level model developed by the team, Table 8 presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

The main points that emerged from the model are:

- Crude oil and gas made the largest contribution to the mining and oil industries of Angola, i.e. 93% of mining output. Other mining industries such as diamonds (7% of output) play a minor role. About 93% of mining output is exported.
- The Angola mining sector is expected to decrease by 24% and mining employment by 28% over 2009. In 2010 the mining sector is expected to recuperate slightly (with international oil and gas prices expected to stay constant) and increase over the medium and long term.
- In 2009 government revenue is expected to decline by 35% due to the contraction in mining and oil activities, slightly recuperating with a 4% increase in 2009.
- Angola's high poverty rates (68% of the population living under the national poverty income line) are expected to increase dramatically as unemployment in the mining and oil sector increases. Almost 14% of the population is expected to be affected by the contraction of the mining sector within the next year, (either as mineworkers, workers in adjacent industries, dependent family members) and due to the general contraction of the economy associated with reduced spending.
- Oil companies corporate social spending contributes almost 1% to the Angola GDP. However, declines in mining and oil activities are expected to reduce the spending by almost 0.4% of GDP.

Botswana

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GDP	Mining industry value (US\$bn)
	2005	35.9	4.2
	2006	36.0	3.7
	2007	36.5	4.0
	2008	37.0	4.7

Total number of people nationally employed by this sector (2008) 13 700 (2.5 % of total employment)

National Employment dependency ratio 3.6

Main mining sectors
 Diamonds
 Nickel
 Copper
 Gold
 Soda ash
 Cobalt
 Coal
 Other: clay, crushed stone and gravel, agates, fluorite, kyanite, silver, antimony, lead, graphite and limestone

Total mining exports
 65% of mining output exported
 26 billion Pula (at 2008 current prices)
 81% of total exports (at 2008 current prices)

Current account balance 7.6 billion Pula (US\$1.1 billion)

Main export markets
 European Union
 United States
 Japan
 China
 India

Major mining companies operating in the country
 Debswana Mining Company
 Tati Nickel Mining Company
 African Diamonds
 Bamangwato Concessions Ltd (BCL)
 lamgold Corp
 Botswana Ash
 CIC Energy

Summary Table (Continued...)

Mining royalties as % of total revenue	9%													
Community Social Investment as % of total revenue (selected listed companies)	0.05%													
Companies that have closed / suspended their operations or might do so in the near future	<ul style="list-style-type: none"> • Debswana has had to adopt severe cost cutting measures such as: production cuts, forcing their employee's to take leave and even reducing their employees' salaries • The Diamond Trading Company has seen plans to move all aggregation activities from London to Botswana postponed. 													
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	Yes – The government has actively (but unsuccessfully) engaged with mines directly to try and minimise job losses. Also, the government intends to draw on its savings to cushion the impact of lower revenues on public spending.													
Impediments to mining industry (in addition to the global financial crisis)	<ul style="list-style-type: none"> • High HIV /AIDS rates among miners • Instability in neighbouring countries, particularly Zimbabwe, affecting investor confidence and the inflow of FDI into the industry • Severe shortage of qualified labour • Relatively high labour costs • Electricity shortages 													
Other socioeconomic indicators*	<table border="0"> <tr> <td>Unemployment (% of labour force)</td> <td>30%</td> </tr> <tr> <td>Poverty (1994) (% of population below national poverty line)</td> <td>46%</td> </tr> <tr> <td>Food security: per capita food production (2004)</td> <td>101</td> </tr> <tr> <td>Gini coefficient (1994)</td> <td>0.54</td> </tr> <tr> <td>Political stability (2006)</td> <td>78.4</td> </tr> <tr> <td>HIV / AIDS prevalence rate (% of population) (2008)</td> <td>23.9%</td> </tr> </table>	Unemployment (% of labour force)	30%	Poverty (1994) (% of population below national poverty line)	46%	Food security: per capita food production (2004)	101	Gini coefficient (1994)	0.54	Political stability (2006)	78.4	HIV / AIDS prevalence rate (% of population) (2008)	23.9%	
Unemployment (% of labour force)	30%													
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Food security: per capita food production (2004)	101													
Gini coefficient (1994)	0.54													
Political stability (2006)	78.4													
HIV / AIDS prevalence rate (% of population) (2008)	23.9%													

* Unemployment = labour force less total employment (formal, informal and subsistence employment). Informal and subsistence unemployment contributed 16% towards total employment in South Africa and 25% in Botswana, 10% for market value on diamonds and 4% average for other minerals

Overview of the mining sector²⁶

The production of gem-quality diamonds continues to be the foundation of Botswana's economy. In 2008, Botswana was the world's leading producer of diamonds by value and the world's second ranked producer of diamond (in terms of volume) after the Russia. Diamond mining provides one-third of the country's GDP, 75percent of its export earnings, and represents 45percent of government expenditure. The country's nickel production accounted for about 2percent of world production. Other significant metal and mineral deposits include copper, gold, soda-ash, coal and nickel. Semi-precious stones, agates, fluorite, kyanite, silver, antimony, lead, graphite and limestone are also known to exist.

In 2008, mining accounted for approximately 37 percent of Botswana's real gross domestic product, and about 50percent of Government revenues were derived from mining and mineral-processing activity. Approximately 13,700 people were employed in the mining industry last year. The sources of mineral revenue for the government of Botswana are diamond dividends, diamond royalties and taxes.

- **Copper**
Botswana's first copper mine began operating in 1974. However, production never remained consistent, due to technical and financial problems. Recent exploration, however, has identified significant copper and copper-nickel deposits in the nation, especially at the Ngwako Pan in north-

west Botswana, as also at the Dukwe and Matsitama mines.

- Coal

Coal is increasingly being seen as the key to a rapidly growing economy's energy demand. The country has two coal mines, namely Morupule Colliery and Mmamabula. The Botswana Power Corp is the biggest consumer of coal in the country. Botswana sits on coal reserves estimated at 300bn tonnes. The Mmamabula energy project will see Botswana transitioning from being a net importer of electrical power to becoming a net exporter of the commodity with the majority of it being sold to Eskom in South Africa.

- Nickel

Nickel is another important metal export. Maximum exports are in the form of copper-nickel matte for onward refining to countries with low energy prices. The Phoenix mine, which is majority owned by LionOre, is the largest nickel mine in Africa. Also, new deposits of nickel sulphide were recently discovered in Dikoloti North.

- Diamonds

Botswana has remained the world's largest producer of gem quality diamonds and produces 35% of the world's diamonds. A diamond hub was established in 2008, and has identified 4 major areas of concentration that include: promotion and active facilitation of the diamond cutting and polishing sector; establishment of a rough and polished diamond trading facility; development of diamond jewellery manufacturing; and attraction of supporting industries.

However, in general, mineral exploration in Botswana is difficult. The basement geology of most of the country is poorly exposed and understood. Exploration techniques rely on geophysics to a large extent, and information is based largely on drilling.

The government policy over the last 10 years to diversify the economy away from an overwhelming reliance on the extractive sector has met with limited success. There is little reason to believe that this trend will change in the medium term. Botswana's ninth

national development plan and long-term goals to sustain economic growth include the promotion of value-added processing of the country's minerals and other natural resources. Also included is a commitment to expand downstream activities through the processing of a proportion of locally mined rough diamond output by domestic gem-cutting and polishing firms.^{xxvii}

Overview of the major mining companies

The Government maintained an equity position in most of the major mining companies, but the industry operated mostly on a privately owned free-market basis. Debswana Mining is the major diamond producer; Tati Nickel Mining Co. (Pty) Ltd (a subsidiary of LionOre Mining International Ltd of Canada) produces copper and nickel; Monarch Goldfields Botswana (Pty) Ltd produces gold; and Botswana Ash (Pty) Ltd produces salt and soda ash. In addition to these major operations, a number of medium- and small-scale mines produced agates, aggregates, clay, and dimension stone.

Debswana's diamond revenues account for about 75% of the country's foreign exchange, 60% of the government revenue, and 33% of the GDP. All of Debswana's mining licences were extended for 25 years in 2006.

Government role in the mining sector

Mineral exploration and mining are regulated by the Geological Surveys Department and the Department of Mines, respectively. Both fall under the Ministry of Mineral Resources and Water Affairs of the Botswana government. All mineral rights are vested in the republic and the primary legislation in this regard is the Mines and

Table 8: Botswana's prominent mining companies

COMPANY	COMMODITY MINED
Debswana	Diamond, Coal
Tati Nickel	Nickel, Copper
Bamangwato Concessions Ltd	Nickel, Copper
LionOre Mining/ Botswana government	Nickel, Copper
DiamonEx	Diamond
Botswana ash	Soda ash
African Diamonds	Diamonds
Iamgold Corp	Gold

Table 9: Profiles of selected mining companies

Company	Commodity	Description and Recent Developments
Debswana	Diamonds, Coal	<ul style="list-style-type: none"> De Beers Botswana Mining (Debswana Mining) is a 50-50 JV between South African De Beers and the Botswana government. Its operations span mining, recovering and sorting diamonds. Debswana Diamond controls most of the diamond mining activities in Botswana. The combined annual production of the company's four diamond mines is 30mn carats, which is about one-quarter of the world's annual production of around 130mn carats. In May 2006, De Beers and the government entered into an agreement on extension of the JV arrangements from mining operations to marketing activities. As a result, Debswana will also now carry out the sorting and valuing of diamond production. A target value for sales to local cutting and polishing factories is also provided for in the agreement. For Botswana, the total value is US\$550mn, to be supplied over the period ending 2010 Botswana's development as a major centre for diamond marketing suffered a setback on December 9th, when De Beers announced that the plan to move all aggregation activities from London to the recently established Diamond Trading Company Botswana had been postponed. <i>In order to mitigate the effects of the global downturn, the company announce in February 2009 that it will reduce production, conserve cash and protect employment by temporarily shutting down its operations and suspend production at of its Damtshaa and Orapa No. 2 mines for the remainder of 2009</i> <i>The suspension of production will impact 580 of its workers (which the company plans to redeploy or offer early retirement and other incentive packages)</i>
Tati Nickel	Nickel/Copper	<ul style="list-style-type: none"> Established in 1988, with Canada-based LionOre Mining International acquired an initial interest in Tati Nickel in 1996, which was increased to 85% in 2002. The Botswana government owns the remaining 15% in the company. Tati Nickel operations include: mines, a concentrator and Phase 1 plants In January 2007, RMB, the investment arm of South Africa-based First Rand Bank, reported that it was to grant a US\$250mn loan to finance a new Activox plant operated by LionOre Mining International in Botswana. <i>In December 2008, the sharp decline in nickel prices, plus the failure at the smelter, which processes 90% of the concentrate produced at the Tati nickel mine, had prompted the suspension of operations for 12 days.</i>
African Diamonds	Diamonds	<ul style="list-style-type: none"> African Diamonds, an Irish-based firm whose focus is particularly on the Orapa area. In February 2004, African Diamonds became the first diamond exploration company to be listed on the Botswana Stock Exchange. AK8 and AK9 kimberlite discoveries will now be wholly owned by African Diamonds. In July 2007, African Diamonds acquired a 25% stake in Botswana-based diamond explorer Wati Ventures, which holds 1.35% interest in the AK6 diamond prospect in Orapa. Further, the company's wholly owned subsidiary, Kukama Mining & Exploration, secured two prospecting licenses close to the Orapa region. African Diamonds had acquired Kukama in July 2002.

Profiles of selected mining companies (Continued...)

African Copper	Copper	<ul style="list-style-type: none"> • <i>The Company reported significant losses in December 2008 annual report, largely due to the downturn in the global diamond market</i> • African Copper is an international exploration and mining company that owns a near term production copper asset called the Dukwe Project in Botswana which is estimated to contain 1.3 billion pounds of copper. The Company's other interests include the 4,000 km² Matsitama exploration concession adjacent to Dukwe, which contains two known copper deposits and numerous base metal exploration targets. • <i>The company is taking full ownership of Atlas, the exploration venture with De Beers, as it is reducing its exploration activities in Botswana, as well as in other countries.</i> • <i>For the three-month period ended 30 September 2008, the Company recorded a loss as the result of an impairment provision related to the Mowana Mine property, plant and equipment together with lower bank interest receivable, higher corporate and Botswana administration costs, increased professional fees and interest and related fees in respect of the Botswana Bond</i>
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Sentences in italics represent the direct impact the global financial crisis has had on the company

Minerals Act, initially passed in 1977, and revised in 1999.

The Mines and Minerals Act specifies the rights and responsibilities of the government when granting prospecting, retention and mining licences. The government insists on effective participation in the mineral industry through equity and board representation. Generally, for large projects, government participation falls in the range of 15-25 percent. This entitles the government to a working interest in the project as well as a proportional piece of any future dividends. Minimum controls, however, are exercised on business operations and the management is left entirely to the private sector partner.

A major example of government's involvement in the mining sector is through Debswana, a joint venture with De Beers. Debswana is the largest diamond player in Botswana, with licences covering over 75 percent of all the land under diamond exploration.

Angola, Botswana, DRC, Namibia, South Africa and Zimbabwe plan collectively to regulate production, trade and pricing of diamonds. The cartel formation is also expected to aid employment generation in the member countries.

Impact of the Global Financial Crisis on the Botswana Economy and the Mining Sector General

The crisis affects Botswana mainly through lower mineral exports, in particular diamond sales, which started to fall significantly from November 2008. Diamond sales revenue is expected to decline by 50% as prices are estimated to decrease by 15%, while production is expected to reduce by 35%. The largest market for Botswana's principal mining export, diamonds, is the US and with its economy entering into recession it is expected that diamond sales will fall. Whether or not this will be of major concern to Botswana depends on how long the economic slowdown lasts, and in particular whether the US enters a long and deep recession. The decline in mineral revenues is expected to adversely affect the government budget balances, which would have to be cushioned by drawing down on the government's reserves and borrowing. Given the duration of the global economic slowdown, the cushion provided by government's reserves may not be sufficient to sustain current rates of expenditure.²⁸ As a result, socioeconomic development could be adversely affected and the crisis could spread to the provision of social services. As it is, the government is already operating on a tight budget and would cut down on its funding for the country's national response to HIV and AIDS.

The mining sector continues to be a cause for concern in the country's economic sphere. Since the beginning of the widespread effects of the global recession a total of 4 500 (The Midweek Sun, 22 April 2009) people have lost their jobs in the mines in Botswana which is quite an alarming number by any standards. Debswana mine resumed production at Jwaneng and Letlhakane mines since the closure for the Christmas break in December 2008. Damtshaa and Orapa No. 2 mines will remain closed for the rest of the year. This has already started affecting the ordinary people's financial standing because as people are laid off their jobs the poverty level rises as dependents also get affected by the job losses. More job losses could also be in the pipeline as the mines reduce their production levels hence the need for regional monitoring of the situation to alleviate some of the negative effects this would have in the already poverty stricken communities.

Furthermore, there are a multitude of multinational companies that directly rely on funding from international markets that are in the process of setting up mining operations in Botswana in various mining activities which include uranium, nickel, copper, silver and gold. However, the global credit crisis is beginning to affect mining projects in Botswana, as companies are now expected to struggle to raise the funds required to start up or expand operations. The mining houses that are likely to be most affected by the crisis are those with excessive debt and the smaller, less established companies who have limited access to financing.

Despite the pessimistic forecasts on mining companies due to the credit crunch, there is a belief that energy development companies will still be able to attract investors due to the huge appetite for power in the industry. Due to the large regional demand for energy these projects will continue to be viable, and therefore will remain largely unaffected by the global financial crisis.

Regarding retrenchments, Debswana has as yet not retrenched any workers. However management and the Botswana Mine Workers Union (BMWU) are currently engaged in talks over a number of labour issues resulting from the scaling back of pro-

duction due to the global financial crisis. The company did force its employees to take leave during December 2008 as a way of controlling costs, and although no official announcement has been made; a downsizing of its workforce seems inevitable. The company has gone on record as saying that retrenchments will only be used as a last resort after all other strategies have been exhausted.

Concessions Limited (BCL), a copper mine in Selebi-Phikwe controlled jointly by the Botswana government and Norilsk Nickel Mining & Metallurgical Company, a Russian enterprise, has announced 348 retrenchments, but the job losses were put on hold by government in a move viewed as a political strategy ahead scheduled elections later in 2009.

Moolman Mining has retrenched 177 workers, out of a planned 400, at its nickel plant in Mowana, central Botswana, but the labour department has become involved in the dispute after dissatisfaction was expressed over retrenchment packages.

Given that 2009 is an election year in Botswana, and that continued job cuts are likely to adversely affect the ruling party performance in these elections; government has attempted over the past few months to stop mining companies from retrenching workers without much success. The BMWU feel that continued consultation between the government and the mining houses is the only way to protect workers. Opposition parties believe the effects of the financial crisis have been worsened by the government's lack of a fallback position. They believe the only way out would be for the government to diversify the economy and increase revenue from the non-mining sector

Table 11: Anticipated number of mining job losses in Botswana

(Potential) number of job losses	Status	Company	Source
580	Confirmed	Debswana	Labour
177 (possibly 223 additional)	Confirmed (Pending)	Moolman Mining	IRIN website (12 February 2009)
348 Pending		Bamangwato Concessions Ltd	IRIN website (12 February 2009)

Table 12: Forecasted impact of the global financial crisis on Botswana's economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO	current	short term		medium term	long term
VARIABLE	2008	2009	2010	2015	2020
Mining GDP (1993/4 prices) Pula m	9 500	7 403	7 133	7 972	9 434
Mining employment	13 700	10 135	9 676	11 102	13 587
Mining GDP (% real change)		-22.1	-3.6	11.8	18.3
Mining employment (% change)		-26.0	-4.5	14.7	22.4
Changes in mining output due to Global financial crisis (Pula m) 1993/4 prices		(2 097)	(270)	839	1 462
Changes in mining employment due to Global financial crisis (000)		(3 565)	(459)	1 426	2 485
Expected indirect impact on GDP(1) Pula m		(1 363)	(176)	545	950
Expected indirect impact on employment (1)		(8 178)	(1 106)	3 435	5 985
Total GDP change (Pula) 1993/93 prices		(3 460)	(446)	1 384	2 412
Total employment change (average Botswana economy)		(11 742)	(1 565)	4 861	8 470
Change as % of GDP		-13.8%	-1.7%	3.4%	4.6%
Change as % of formal employment		-2.8%	-0.4%	1.0%	1.5%
Number of dependents : formal employed		3.6	3.6	3.2	3.0
Number dependents affected by changes in employment		42 272	5 634	15 556	25 410
Total Number people affected by changes in mining output (employed + dependents)(000)		54 014	7 199	20 417	33 880
Population (000)		1 929	1 953	2 064	2 170
Total Number affected above as % of population		2.8%	0.4%	1.0%	1.6%
Change in social corporate investment spending (Pula m) 1993/4 prices		74	143	159	189
(A) change in tax income (Pula m) 1993/4 prices		(1 246)	(160)	498	868
(B) change in royalties (Pula m) 1993/4 prices		(377)	(49)	151	263
% of (A) and (B) effect on total tax income		-18.0%	-2.2%	4.4%	6.0%

1) due to industry linkages and secondary spending effects

Anticipated Short-, Medium- and Long-Term Impacts of the Crisis on Botswana

Using a high-level model developed by the team, Table 12 on the next page presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

The main points that emerged from the model are:

- The mining sector contributed about 42 percent towards Botswana output in 2008 and 3 percent towards employment. The diamond industry makes the single largest contribution of 81percent to output in 2008, followed by the 13percent contribution by the copper/nickel industries. About 65percent of mining output is exported.
- The Botswana mining sector is expected to decrease by 22percent and mining employment by 26percent during 2009. Over the medium and longer term (2010-2020), an increase in the international copper price is expected to offset the employment and output decreases in the mining sector.
- Government revenue is expected to decrease by as much as 33 percent in 2009. However, the foreign reserve position of Botswana is still strong with foreign reserve holdings estimated at about 75percent of GDP in 2007.

- Despite the high output contribution of the mining industry in Botswana, it employs a relatively low number of people. In addition, the number of dependents per person formally employed, is relatively low compared to the other countries, resulting in a relatively lower percentage of 3percent of the Botswana population that will be negatively affected due to the downturn in the mining industry either as mining workers, workers in adjacent industries, dependent family members.
- Botswana need to diversify its economy. The government is responding to the call. Botswana has a mono-based economy whose mainstay is the diamond mining industry. Government has been at pains to encourage diversification. As one of its efforts to attain the country's desired goal of diversification, government is currently developing the Botswana Innovation Hub which is a tool meant to attract investors, promote interaction between universities and industries, foreign and local companies. The projects are aimed at attracting both local and foreign investments that will contribute towards diversification and employment creation. The Hub will also provide legal services, cleaning services, information technology services and security services all under one single roof. This is being set up upon recognition of the urgent need of the country to diversify its economy as diamond sales go down.

Democratic Republic of Congo

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GDP	Mining industry value (US\$bn)
	2005	0.09	7.19
	2006	0.10	7.20
	2007	0.11	8.38
	2008	0.11	8.33
Total number of people nationally employed by this sector (2008)	2.5 million (37% of total employment)		
National Employment dependency ratio	8.4		
Main mining sectors	Cobalt Copper Diamonds Crude petroleum Other: Gold, Niobium (columbium), Tantalum, Tin, Tungsten, Zinc		
Total mining exports	90% of mining output exported CDF 1056 billion (at 2008 current prices) 77% pf total exports (at 2008 current prices)		
Current account balance	CDF 1102 billion deficit (US\$ 0.24 billion deficit)		
Main export markets	Belgium China Brazil Finland Israel		
Major mining companies operating in the country	Gécamines Anvil Mining First Quantum Minerals Simberi Mining		
Mining royalties as % of total revenue	2.5%		
Community Social Investment as % of total revenue (selected listed companies)	0.1%		

Summary Table (Continued...)

Companies that have closed / suspended their operations or might do so in the near future	<ul style="list-style-type: none"> • Anvil (suspended work at its Mutoshi mine) • At least 45 of 75 copper mining companies in the Katanga province have closed in 2008. • BHP Billiton (abandoned exploration activities in Katanga in February 2008). 												
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	<ul style="list-style-type: none"> • Congolese state-owned mining firms approached companies to pay new signing bonuses in an attempt to raise much needed cash • Government has slashed taxes on mineral exports from 23% to 1% 												
Impediments to mining industry (in addition to the global financial crisis)	<ul style="list-style-type: none"> • Continued political instability in the region and armed conflict • Poor condition of infrastructure • Uncertain legal framework • Cumbersome review process of mining • Bureaucracy and weak governance structures. The DRC was recently voted last in the World Bank's Doing Business survey 												
Other socioeconomic indicators	<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">Unemployment (% of labour force)</td> <td style="text-align: right;">9.6%</td> </tr> <tr> <td>Poverty (2005) (% of population below national poverty line)</td> <td style="text-align: right;">59%</td> </tr> <tr> <td>Food security: per capita food production (2004)</td> <td style="text-align: right;">90</td> </tr> <tr> <td>Gini coefficient (2005)</td> <td style="text-align: right;">0.44</td> </tr> <tr> <td>Political stability (2006)</td> <td style="text-align: right;">2.4</td> </tr> <tr> <td>HIV / AIDS prevalence rate (% of population) (2003)</td> <td style="text-align: right;">4%</td> </tr> </table>	Unemployment (% of labour force)	9.6%	Poverty (2005) (% of population below national poverty line)	59%	Food security: per capita food production (2004)	90	Gini coefficient (2005)	0.44	Political stability (2006)	2.4	HIV / AIDS prevalence rate (% of population) (2003)	4%
Unemployment (% of labour force)	9.6%												
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Political stability (2006)	2.4												
HIV / AIDS prevalence rate (% of population) (2003)	4%												

Source: BMI (2008)

Overview of the Mining Sector²⁹

The DRC is home to enormous reserves of a variety of mineral resources. The primary minerals found in the DRC include metals such as cobalt, copper, gold and precious stones such as diamonds. Other minerals found in the DRC include manganese, uranium, iron ore, coal, petroleum or oil and columbite-tantalite, otherwise known as coltan. Major resources are concentrated in the southern and eastern regions of the DRC.

The mining industry, like the rest of the economy in the central African nation, had suffered due to an unstable political environment, coupled with widespread strife caused by the six-year civil war that ended in 2003. Civil unrest and the looting of minerals and precious stones by armed militia continue to drain the country's rich natural resources. Though multinational miners have started investing in the country's mineral and metals sector, the physical infrastructure remains extremely poor or even nonexistent at times. These factors have affected formal mining activity and have resulted in a shortage of funds, which has constrained mining industry development.

• **Coal**

The only producer of coal in the country has been the state-owned mining company, Gécamines. As a result of the ethnic conflicts in the Katanga province, as well as the increasing production of hydroelectricity in the country, coal production has reduced considerably from the Luena mine.

• **Precious Metals**

Since gaining independence from Belgium in 1960, few operations have taken place in gold mining, and historically, small scale miners used to produce gold in the Ituri province in Eastern DRC. As a result, current gold production is erratic and has been declining rapidly. The United States Geological Survey (USGS) estimated national gold output at some 4 200kg in 2005, compared with 5 700kg in 2004, and 6 100kg in 2001.

• **Diamonds**

The DRC is the world's third largest diamond producer by volume, although it ranks lower by value. About 90percent of its diamond output is of industrial quality (not suitable for use in jew-

ellery), rather than gem quality. A peculiar feature of the mining industry in the DRC is that artisanal mining (i.e. non-mechanised small-scale mining) accounts for 70percent of national diamond production. Thus, in spite of being the world's third-largest diamond producer in terms of output, the country is ranked only seventh in terms of value. Further, use of archaic mining techniques has restricted possible growth in the diamond mining segment. However, industry analysts believe that the DRC has solid potential and could well be on its way to becoming the world's leading diamond producer, provided illegal mining and smuggling activity can be shut down.

- **Base metals and other minerals**

The Katanga province is part of the central African Copperbelt that extends from Angola through the DRC into Zambia. Together with Zambia, the DRC supplies half of the world's **cobalt**. The country's only **uranium** mine, Shinkolobwe mine was closed in 1960 for safety reasons when the DRC gained independence from Belgium. Since the mine has closed, there has been a lot of illegal small-scale mining activity at the mine.

As part of the overall plan to stimulate the country's economy after the negative impact of the civil war, the government of the DRC wants to start a diversification strategy towards new metals such as **iron ore, nickel** and **chromium**. Probable reserves of iron ore are estimated at 4 billion tons with a 60percent average metal content. According to the Ministry of Mines, there is work currently in progress to determine the extent of nickel and chromium reserves in the country.

Although not a renowned mineral resource, **coltan** is an important mineral to the DRC and the country is estimated to possess 80 percent of global coltan reserves. Coltan is an essential constituent of mobile phones because of its lightness and high electrical conductivity. It is also used in other electric equipment such as DVDs and computers.

Proved **oil** reserves in the DRC have been estimated at 1.538 billion barrels in January 2002. The DRC is a small oil producer and its production is insignificant when compared to major oil producers in the world. Between 2001 and 2005, the

average amount of oil produced in the country was 9 million barrels per year. There are currently **natural gas** exploration activities taking place in the eastern parts of the country.

Overview of the Major Mining Companies³⁰

State-controlled Gécamines dominates the mining activities, and its principal products are copper, cobalt and zinc. However, many overseas players have built a stronghold in domestic mining activity. Anvil Mining is one such company, operating the Dikilushi copper mine near Lake Mweru in Katanga province.

Previously, small-scale miners used to produce gold in Ituri province in eastern DRC. However, in 2004, Australia's Moto Goldmines began exploration for gold at the Kilo Moto mine in Ituri

Furthermore, there are two types of diamond exploitation taking place in the DRC: industrial exploitation and artisanal exploitation, with the latter dominating the production.

Brief profiles of some of the selected companies are provided in Table 14 below:

Table 13: Angola's prominent mining companies

Mining Company	Commodity
Moto Gold Mines Ltd	Gold
AngloGold Ashanti	Gold
Miniere de Bakwanga (Miba)	Diamonds
De Beers	Diamonds
Southern Era Diamonds	Diamonds
BRC Diamonds	Diamonds
Gécamines	Copper, cobalt, zinc and uranium
Anvil Mining Ltd	Copper
Katanga Mining Ltd	Copper
First Quantum Minerals	Cobalt
Enterprise Miniere de Kisenge	Manganese
Tenke Fungurume Mining	Copper and Cobalt
Ruashi Mining	Copper and cobalt
Congo Gulf Oil (Chevron)	Oil
Teikoku Oil of Japan	Oil
Union Oil of California	Oil
La Congolaise des Hydrocarbures	Oil

Table 14: Profiles of selected mining companies

Mining Company	Commodity	Description and Recent Developments
Gécamines	Copper, Cobalt, Zinc and Uranium	<ul style="list-style-type: none"> Gécamines, a state-owned mining company, controls most of the DRC's mining activities and has several JVs with foreign investors The company's mining operations include: <ul style="list-style-type: none"> Kakanda/Kambove (a copper mine), which is a JV with Canada-based International Panorama Resources Corp Kamfundwa (a copper mine), which is a JV with Canada-based Harambee Mining Corp and Switzerland's Sogemin Kamoto (a copper mine) Kipushi (produces copper, gold and zinc), which is a JV with Adastra Minerals and Zinc Corporation of South Africa. (Adastra Minerals was later taken over by First Quantum) Kolwezi (a copper mine) Kov (a copper mine) In February 2009, Africo Resources Ltd announced that it has reached agreement with Gecamines and the government of the DRC on the amended terms governing the Kalukundi property Gécamines has recently experienced problems discussing contracts with major mining companies, which in turn is delaying the completion of the two-year-old review process for 61 mining contracts. At the heart of the issue is the fact that the mining companies are of the view that their contracts are fair and balanced and will not agree to new terms and what to pay to Gécamines³¹
Anvil Mining	Copper	<ul style="list-style-type: none"> Anvil Mining, listed on the Toronto and Australian stock exchanges, is a copper producer engaged in the acquisition, exploration, development and mining of mineral properties The company has one high-grade copper-silver open-pit mine in the DRC; a high-grade copper tailings re-treatment facility; and an advanced copper-cobalt project, which is currently under evaluation. <i>In December 2008, the Company announced it was in the process of suspending concentrate production, postponing underground development work, and initiating a care-and-maintenance programme at its copper mine. This was as a result of the low copper price.</i> <i>In March 2009, the directors, senior management and staff of Anvil Mining agreed to a 20% reduction in fees and salaries, as the firm moves to cut costs and conserve cash amid sharply lower copper prices</i>
First Quantum Minerals	Copper, Cobalt And Gold	<ul style="list-style-type: none"> First Quantum Minerals is a Canada-based company and its principal activities comprise mineral exploration, development and mining. It produces grade 'A' copper cathode, copper concentrate, gold and sulphuric acid In DRC, the company operates the 100%-owned Lonshi open-pit copper mine. The mine provides oxide copper ore for processing at Bwana Mkubwa. The company also holds a 65% stake in the Kolwezi copper-cobalt tailings project and a 95% interest in the Frontier copper deposit. This latter mine became operational in November 2007 In June 2008, First Quantum finalised the purchase of Scandinavian Minerals for US\$281 million

Profiles of selected mining companies (Continued...)

		<ul style="list-style-type: none"> • Production is expected to rise (copper up 10% to 380000 tonnes and gold up over 100% to 240000 ounces). The company's higher production partly follows the successful ramp-up at the Frontier mine • <i>In March 2009, First Quantum Minerals reported a company-wide net loss of \$49.6-million for the last three months of 2008, compared with a \$135.3-million profit a year earlier, after sharp declines in copper prices ate into earnings.</i> • <i>The 2009 exploration budget has been reduced to \$10 million from approximately \$28 million in 2008. Senior management and the Board are making a personal contribution to the efforts to lower costs with a 20% cut in salaries and fees Significant cost reductions, aided by declining input costs, are starting to be realised</i>
<p>Miniere de Bakwanga (Miba)</p>	<p>Diamonds</p>	<ul style="list-style-type: none"> • Miniere de Bakwanga (Miba) is 80% state-owned and the remaining 20% is held by Mwana Africa • Miba's has mining operations in the town of Mbuji-Mayi in the Kasai province • In September 2008, the diamond mining parastatal, Société minière de Bakwanga, signed an agreement with South Africa's Industrial Development Corporation and the Development Bank of Southern Africa to borrow US\$140m for repairing hydropower and production facilities • A strike occurred in October 2008 with workers demanding the payment of 20 months of wage arrears

Sentences in italics represent the direct impact the global financial crisis has had on the company

Government role in the mining sector³²

The deposits of mineral substances, including underground water and geothermal deposits on the surface or in the sub-soil of the national territory are the exclusive property of the state. However, the holders of mining rights acquire the ownership of the products for sale by virtue of their rights.

The president of the DRC regulates the implementation of mining regulation on the proposal of the Ministry of Mines, after having obtained the advice of the Mining Registry or the Geological Directorate. The Ministry of Mines manages the nation's mining industry based on the 'national mining code. Under the provisions of the mining code, the state aims to ensure the development of the minerals it owns by resorting, in particular, to the private sector. The state's principal role is to promote and regulate the development of the mining industry by the private sector. However, the state may, through expert organisations set up for that purpose, carry out exploration activities with the sole purpose of improving the

geological knowledge of the national territory, or for scientific purposes, which do not require a mining or quarry right to be obtained. In assisting with the promotion of economic stability, the World Bank sponsored the development of the New Mining Code and it was successfully enacted in 2003.

The Mining Registry is a public entity with legal status and financial autonomy. It is responsible for mining and quarry rights granted and also assesses the financial capability of the applicants for mining rights. It is under the supervision of the Ministry of Mines. The Geology Directorate is responsible for the promotion of the mining industry through basic geological research and compilation and publication of geological information. The Directorate of Mines is responsible for inspecting mining activities with regard to safety, health, work procedures and social matters. The Ministry of Mines is currently reviewing 61 mining contracts and has missed a succession of deadlines announced by the ministry for its conclusion. The first stage of the review found that 14

contracts were acceptable, 26 contracts required amendment, and 21 contracts faced cancellation. The final stage of the process was to negotiate revised terms or new contracts with the mining companies involved. The protracted and opaque nature of the review process has done much to dampen the interest of foreign investors in the DRC.

In early February 2009, the country has seen its largely mineral-funded foreign currency reserves crash to just \$36 million from over \$225 million in April 2008, and the government has grown increasingly desperate for cash. In February of this year, Congolese state-owned mining firms approached companies to pay new signing bonuses they say they are owed following a recently completed contract review process. But the move was resisted by miners already struggling to stay afloat. In an attempt to boost output from companies still exporting as well as those due to start production in the coming months, the Ministry of Mines has dramatically reduced taxes on mineral exports from 23 percent to 1 percent. The ministry admits that turning around the sector, which has already seen around 300 000 jobs lost in Katanga province alone, will depend more on a global economic recovery than on ramping up output.³³

Impact of the Global Financial Crisis on the DRC's Economy and its Mining Sector³⁴ **General**

Falling export prices at the onset of the global financial crisis in late 2008 contributed (together with a surge in public spending to tackle the escalating conflict in the eastern provinces) to weakened macroeconomic performance. The higher spending and the slowdown in export revenue resulted in large government borrowing from the central bank. This induced draw down of gross official reserves, resulted in a five-year low at the end of 2008 of US\$75 million (less than a week of import cover) and a 10 percent depreciation of the franc against the US dollar.³⁵

The mining industry in the DRC has been dealt a particularly severe blow by the current global financial and economic crisis, which contributed to a collapse in the share price of DRC mining companies in the latter part of 2008. The fall in the share price of these and other

mining companies in the DRC has made it impossible for them to finance investment with rights issues, and at the same time banking finance has all but dried up as well. Only companies with their own cash reserves are in a position to move forward with their plans. Most of the international mining companies operating in the DRC have since the beginning of the year suspended some of their operations to reduce borrowing costs. Anvil, for example, recently suspended work at its Mutoshi mine near Kolwezi. BHP Billiton abandoned exploration activities in Katanga in January 2009. First Quantum have placed key assets on "care and maintenance". Shares in Toronto-listed Katanga Mining, have fallen 98 percent in the last year. Gold has by comparison held up well in the financial crisis, however, AngloGold Ashanti, scaled back exploration activities towards the end of 2008 amid a resurgence of armed militias. Companies operating in DRC's crisis-stricken and cash-strapped mining sector will struggle in 2009, with only the biggest projects likely to survive the year.

Another casualty of the lower international copper price is artisanal mining. Tens of thousands of people continue to mine artisanally in Katanga, although most of them have been chased away from sites now owned by international mining companies. Yet, ever since copper prices dropped below US\$5,000/tonne, and at least 45 of 75 mining companies closed last year, most buyers from artisanal diggers have stopped buying. Most copper- and cobalt-buying houses in Kolwezi, many of which were Chinese owned and -operated, have closed, and diggers can find few if any purchasers for their product. If, as is likely, the copper price fails to pick up, and diggers remain without buyers, poverty in Katanga will worsen and the risk of social unrest will increase.

Anticipated Short-, Medium- and Long-Term Impacts of the Crisis on the DRC

Using a high-level model developed by the team, Table 15 on the next page presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

Table 15: Forecasted impact of the global financial crisis on the DRC's economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO	current	short term		medium term	long term
VARIABLE	2008	2009	2010	2015	2020
Mining GDP (2000 prices) CDF bn	58.3	42.1	41.6	45.9	53.6
Mining employment (000)	2 500	2 176	2 167	2 251	2 407
Mining GDP (% real change)		-27.8	-1.2	10.1	17.0
Mining employment (% change)		-12.9	-0.4	3.9	6.9
Changes in mining output due to Global financial crisis (CDF bn) 2000 prices		(16.2)	(0.5)	4.2	7.8
Changes in mining employment due to Global financial crisis (000)		(324)	(10)	85	156
Expected indirect impact on GDP(1) CDF bn		(15.9)	(0.5)	4.1	7.6
Expected indirect impact on employment (1) (000)		(159)	(5)	41	76
Total GDP change (CDF bn) 2000 prices		(32)	(1)	8	15
Total employment change (average DRC economy) (000)		(482)	(15)	126	232
Change as % of GDP		-7.1%	-0.2%	1.1%	1.6%
Change as % of formal employment		-7.1%	-0.2%	1.3%	1.9%
Number of dependents : formal employed		8.4	8.4	7.1	6.4
Number dependents affected by changes in employment		4 050	122	894	1 496
Total Number people affected by changes in mining output (employed + dependents)		4 533	137	1 020	1 728
Population (000)		64 119	66 020	78 541	89 975
Total Number affected above as % of population		7.1%	0.2%	1.3%	1.9%
Social corporate investment spending (CDF bn) 2000 prices		(0.032)	(0.001)	0.008	0.016
(A) change in tax income (CDF bn) 2000 prices		(3.2)	(0.1)	0.8	1.5
(B) change in royalties (CDF bn) 2000 prices		(0.8)	(0.0)	0.2	0.4
% of (A) and (B) effect on total tax income		-8.9%	-0.3%	1.4%	2.1%

(1) due to industry linkages and secondary spending effects

- The mining sector contributes about 13percent towards total output and 37percent towards employment. About 80 percent of the employment opportunities in the sector are held by small artisanal miners. Mining output is dominated by diamonds (39 percent); crude oil (26%) and copper (33percent. About 90 percent of all mining output is exported.
- The DRC mining sector is expected to decrease by 28 percent and mining employment by 13 percent during 2009. Over the medium and longer term (2010-2020), an increase in the international copper price is expected to offset the employment and output decreases in the mining sector. Mining output and employment are expected to decrease throughout 2009 and 2010 slowly recovering from 2010 to 2020. However it is expected that mining output and employment levels will still be below 2008 levels in 2020.
- Due to the large number of dependents per formally employed person as well as large numbers of mining workers involved, about 7percent of the total population is expected to be affected by the contraction of the mining sector in 2009.

Malawi

Summary Table

Total number of people nationally employed by this sector (2008)	12000 (21% of total employment)
National Employment dependency ratio	10.3
Main mining sectors	Uranium Coal Cement Limestone Rubies Sapphires Bauxite
Total mining exports	75% of mining output is exported Mk 1.9 bn (at 2008 current prices) 1.1% of total exports (at 2008 current prices)
Current account balance	Mk 48.3 bn deficit (US\$0.3 billion deficit)
Main export markets	Germany South Africa Egypt Zimbabwe EU
Major mining companies operating in the country	Paladin Resources Mchenga Coal Mines Lisungwe Mineral Resources Gondo Resources
Community Social Investment as % of total revenue (selected listed companies)	0.1%
Has there been any recorded political or socioeconomic unrest as a direct result of the downturn in the mining sector?	No – no records found
Impediments to mining industry (in addition to the global financial crisis)	Poor infrastructure Equipment and skills shortages Environmental problems of deforestation and erosion Rapidly growing rates of HIV and AIDS infection

Summary Table (Continued...)

Other socioeconomic indicators*	Unemployment (% of labour force)	7.8%
	Poverty (2005) (% of population below national poverty line)	52%
	Food security: per capita food production (2004)	84
	Gini coefficient (2005)	0.39
	Political stability (2006)	41.8
	HIV and AIDS prevalence rate (% of population) (2008)	14%

Overview of the mining sector³⁶

Malawi, predominantly an agricultural country, was not historically known to be well endowed with mineral wealth; however in recent years this perception has proved erroneous. The country has produced uranium, cement, coal, crushed stone for aggregates, dolomite, and limestone for domestic consumption. The country also produces small amounts of lime and artisanal salt. Malawi has been known to produce various gemstones, such as agate, amethyst, aquamarine, garnet, rubies, and sapphires. The country has deposits of apatite, bauxite, corundum, granite, graphite, kaolin, kyanite, monzanite, phosphate rock, pyrite, salt, silica sand, tourmaline, and vermiculite.

Recently the government of Malawi has started placing emphasis on the development of the mining sector. In October 2008, several sectors of the mining industry reported increased production in 2007 and expect this trend to continue, creating much-needed employment and enhancing the sector's contribution to gross domestic product. A report from Malawi's Department of Mines and Natural Resources (DMNR) showed that production of gemstones in 2007 increased by 70 percent from the 3 710 kg produced in 2006, while production of limestone jumped by 22 percent, to 42 088 tons. The report also indicates that cement producer Shayona increased output by 30 percent, with a steady increase expected over the next two years. Production of aggregate surged to 146 033 m³, a 17, 9 percent increase on the previous year's figure.

- **Uranium**

The country's first uranium mine, the Kayelekera mine in northern Malawi, is gearing up to start production. In January 2009, Paladin Energy, the Australian company developing the mine, recon-

firmed that production will start this quarter. Once complete and running at full capacity, the mine is expected to produce up to 3.3 million pounds of uranium oxide per year. The life of the mine is expected to be eleven years

- **Coal**

Malawi has approximately 4 million tons of proven coal reserves, while probable reserves are estimated to be as high as 150 million tons. Malawi has five identified subbituminous coal fields. The Livingstonia coal field in northern Malawi (where the Mchenga coal mine is located) has estimated resources of 2 million tons of coal. The Livingstonia field has the coal with the lowest known average ash content and the highest known average calorific value in Malawi. Investment in this sector is required to meet the rising domestic demand and to reduce dependence on imported coal

- **Precious and semiprecious gem stones**

Malawi's precious and semiprecious gemstones are produced by artisanal miners who worked in 14 of Malawi's 25 districts. Quartz feldspar pegmatites, especially those in Chitipa, Mwanza, Mzimba, Nsanje, Ntcheu, and Rumphu contain amethyst, aquamarine, and rhodolite. Ruby and sapphire are found mainly in Mwanza, Nsanje, and Ntcheu

Overview of the major mining companies³⁷

In 2006, mining companies – mostly juniors – held 26 exclusive prospecting licences for base metals, platinum-group elements, and heavy mineral sands; one licence for base metal reconnaissance; 94 non-exclusive prospecting licences on gemstones; 36 mining claim licences on gemstones and ornamental stones; and 31 reserve minerals licences on gemstones. In addition, six mining companies – Paladin Resources, Balmain Resources, Red Rock Resources, Globe Uranium,

BOX 6: IMPENDING SHORTFALL LEADS TO RISING AFRICAN URANIUM PRODUCTION

A recent *Mining Weekly* article stated that an impending shortfall in the supply of uranium will become apparent in the next two years, within which time production of the mineral from African resources will rise to significant levels. Industry insiders forecasted uranium consumption up to 2015 exceeds the forecasted uranium production up to the same period. In the short term, by 2015 or 2020, there will not be enough uranium production from primary sources to meet the committed expansion in nuclear generating capacities.

Africa, with its large resources of uranium is more likely to be allowed to develop these resources, and is already becoming an increasingly significant uranium producer. Furthermore, there is generally a favourable legislative environment for the development of uranium mines on the continent. While in comparison, in Australia, which contains about a quarter of the world's known resources, prohibitive environmental and political legislation towards uranium-mining inhibits the mining of the resource.

Currently, South Africa, Namibia and Niger are the only three uranium producing countries in Africa. By the end of 2008, new uranium producer Paladin Energy's Kayelekera mine (in Malawi) will make the country the next uranium producer to come on line in Africa.

In terms of nuclear power, there are about 440 operating nuclear plants around the world, with another 130 plants under construction. These are expected to be completed and to come on line over the next five years. World uranium production has to supply these operating plants, as well as the new ones that will be coming on line. Current global consumption of uranium from the 440 operating plants is about 170-million pounds of triuranium octoxide (U3O8) a year, with production at about 110-million pounds of U3O8 a year. The deficit of 60-million pounds of U3O8 is being made up from the reprocessing of US and Soviet nuclear warheads. U3O8 is the most stable form of uranium oxide and is the form most commonly found in nature. It is anticipated that consumption will increase to over the 200-million pounds of U3O8 a year required, by as soon as 2015.

Approximately 85% of uranium is not sold on the spot market but it is sold under contract. Therefore, even though the spot market price is widely quoted, it has very little relevance to the real uranium market. Thus while the current spot market price of uranium has fallen to half of what its peak was at in June 2007, the long-term contract prices have increased. Further, at the beginning of the decade, contract terms were drawn up for periods of up to a year, but contracts now are being signed for much longer terms of up to five years. Sserious participants in uranium-mining have largely been unaffected by the drop in the spot price.

However, while Southern African uranium producers are still well placed to take advantage of the imminent production shortfall, there may be difficulties to secure funding in the current financial market which could possibly slow down, defer or postpone operations that are currently under construction.

Source: Mining Weekly (7 November 2008).

Table 16: Malawi's prominent mining companies

COMPANY	COMMODITY MINED
Mchenga Coal Mines	Coal
Paladin Resources	Uranium
Oropa Ltd	Uranium
Millennium Mining Ltd	Mineral sands
Allied Procurement Agency	Ilmenite, rutile, zircon, garnet
Lisungwe Mineral Resources Ltd	Gold, platinum, uranium
Albidon Ltd	Nickel, copper, platinum
Maravi Minerals Development Ltd	Tantalite, zircon, corundum
Gondo Resources	Bauxite

Lisungwe Mineral Resources, and African Energy Resources –were prospecting and exploring for uranium in the country. Most of the mining and mineral processing operations in Malawi were privately owned, including the cement plants, the Mchenga coal mine, and the Chimwadzulu Hill ruby and sapphire mine. International companies, mainly from South Africa, United Kingdom and Australia, are involved in mineral exploration and development in the country.³⁸

Government role in the mining sector

Mineral activities in Malawi are covered by the Mines and Minerals Act, 1981, the Mines and

Table 17: Profiles of selected mining companies

Company	Commodity	Description and Recent Developments
Paladin Resources	Uranium	<ul style="list-style-type: none"> Paladin Resources Ltd is an Australian listed company with a strong emphasis on uranium. The company owns the Kayelekera Project in Malawi. The company announced that infill and extension drilling at its Kayelekera deposit (in Malawi) had added significantly to the estimated resource base, and had increased the estimated life-of-mine. In October 2008, Paladin signed a supply contract with an Asian power utility for the delivery of 1.5-million pounds of uranium from 2009- 2011. In February 2009, Paladin also said that it was finalising the necessary second uranium sales agreement in support of the project, which will commit Kayelekera to deliver more than one-million pounds of uranium oxide to a North American utility customer, between 2011 and 2013. <i>Paladin's outlook for nuclear power worldwide remained "extremely positive" in February 2009, despite the current recessionary conditions in major economies. The reason being that the recent disruption of natural gas flows in parts of Europe has reminded governments and consumers of the risks of over-reliance on single-energy sources. The global challenge of devising and implementing practical climate change policies continues to support the retention of existing nuclear power plants, and adds weight to arguments in favour of a significant expansion of the nuclear electricity capacity, over the next 20 years.</i> <i>Paladin noted that uranium supply growth continues to lag behind demand from the existing reactor fleet, and said a fundamental supply/demand imbalance, continued to strongly favour uranium producers for the foreseeable future.</i>
Mchenga Coal Mines	Coal	<ul style="list-style-type: none"> Main coal extractor and producer in Malawi Plans to expand its production to 5000 metric tons from 2006 onwards to cater for the increasing demand by various industries, especially the tobacco industry
Lisungwe Mineral Resources Ltd	Gold, platinum, uranium	<ul style="list-style-type: none"> UK company involved in exploration for gold, platinum-group metals and uranium in the Lisungwe area of central Malawi In February 2009, Lisungwe Mineral Resources is investigating the feasibility of producing sulphuric acid in Malawi, for use at its planned Chimimbe Hills nickel mine, where exploration has produced "encouraging results".
Gondo Resources	Bauxite	<ul style="list-style-type: none"> South African company that is a relatively new player in the country's mining industry. Gondo seeks to exploit the Bauxite reserves in the Mulanje Mountain in Malawi In January 2009, the company announced it would launch a feasibility study into a bauxite project in the Mulanje area of southern Malawi early this year. This follows reports that the Malawi government has asked the firm to conduct a feasibility study within 24 months or risk losing its exclusive prospecting license over the Mulanje deposit, which boasts probable and indicated reserves of bauxite amounting to 25 6-million tons. Gondo was granted an exclusive prospecting license for Mulanje bauxite in 2005, but this expired last year, before a feasibility study and an EIA was undertaken.

Sentences in italics represent the direct impact the global financial crisis has had on the company

Minerals (Mineral Rights) Regulations, 1981, and the Petroleum (Exploration and Production) Act of 1983. The Mines and Minerals Act of Malawi was passed on 1 July 1981 during Banda's one party regime. Since this act has not been amended, all minerals are therefore still vested in the president on behalf of the people of Malawi.

After Malawi's transition to a democratic dispensation in 1994 and the adoption of a new constitution in 1995, a review of the extant environmental situation was undertaken. Environmental provisions were subsequently inserted in the Mines and Minerals Act, including the stipulation that an environmental impact assessment be submitted to the Department of Research and Environmental Affairs for review with each mineral rights application. However, the existing pieces of legislation were reviewed and/or amended in a piecemeal manner.

Mining has been identified as a priority in the national economic growth strategy, and in order to continue expanding this nascent industry the government has recently been working to ensure that there is a conducive environment for investors. A package of incentives has been created for mining investors.

In 2009, the Malawi government published proposed regulations to govern its uranium sector, focussing on:³⁹

- the need for players in the uranium sector to adhere to environmental, health and safety standards;
- mining companies putting in place measures to mitigate the effects of accidental releases of hazardous substances on the environment, upon pain of heavy penalties;
- The development of a radioactive waste management plan for each stage must be devised by the licensee before uranium-mining may start.

Impact of the Global Financial Crisis on the Malawian Economy and the Mining Sector General

According to the EIU,⁴⁰ given the global recession and the worsening outlook for Malawi's economic prospects, the country's dependence on donor support will continue and may even deepen. The government is expected to negotiate a successor programme to the recently expired Poverty

Reduction and Growth Facility. In the meantime, Malawi has accessed the IMF's new exogenous shock facility, which is designed to mitigate the terms-of-trade shock that it has suffered as a result of high food, fuel and fertiliser prices in 2008.

However, mining is expected to benefit from the rapid expansion of uranium production in 2009, and the government projects that exports from the Kayelekera deposit will reach around US\$200 million per year, which would boost total exports by almost 30% from current levels. It has been predicted that depending on prevailing prices, uranium could even supplant tobacco as the country's largest export earner. However, the global financial crisis is likely to dampen prospects of further major investments in mining during the forecast period.

Anticipated Short-, Medium- and Long-Term Impacts of the Crisis on Malawi

Using a high-level model developed by the team, Table 16 presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

The main points that emerged from the model are:

- The mining sector in Malawi is currently small, contributing only 1% towards both output and employment. Due to the global financial crisis the planned output of the mine in 2009 is expected to increase only mining output by 2.6 times in contrast to the 3.2 times predicted before the global financial crisis.
- While the Malawi mining industry is still expected to increase significantly throughout the whole period (2008-2020) due to the new uranium mine, the increase in output is expected to be 1.4% lower than the original output forecast and 0.3% lower than original employment forecast. This means that government revenue could be almost 5% lower than originally anticipated.

Table 18: Forecasted impact of the global financial crisis on Malawi's economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO	current	short term		medium term	long term
VARIABLE	2008	2009	2010	2015	2020
Mining GDP (2000 prices) MKbn	2.0	4.1	4.2	5.0	5.9
Mining employment	11 600	13 681	13 801	14 636	15 495
Mining GDP (% real change) MKbn		104.1	2.9	19.9	17.0
Mining employment (% change)		17.9	0.9	6.1	5.9
Change in mining output due to financial crisis MKbn		2	0	1	1
Change in mining employment due to financial crisis		2 081	120	835	858
Forecasted mining GDP (2000 prices) without global financial crisis MKbn	2.0	5.1	5.3	6.7	7.8
Forecasted mining employment without global financial crisis	11 600	14 684	13 939	15 136	15 720
Difference in forecasts in mining output before and after Global financial crisis (MKbn) 2000 prices		(1.0)	(1.1)	(1.6)	(1.9)
Difference in forecasts in mining employment before and after Global financial crisis (MKbn) 2000 prices		(1 003)	(138)	(500)	(225)
Expected indirect impact on GDP(1) MKbn		(1.1)	(1.2)	(1.7)	(2.0)
Expected indirect impact on employment (1)		(2 608)	(360)	(1 300)	(586)
Total GDP change (MK bn) 2000 prices		(2)	(2)	(3)	(4)
Total employment change (average Malawi economy)		(3 611.3)	(497.9)	(1 799.6)	(811.3)
Change as % of GDP		-1.4%	-1.5%	-1.6%	-1.4%
Change as % of formal employment		-0.31%	-0.04%	-0.10%	-0.032%
Number of dependents : formal employed		9.5	8.9	7.3	5.8
Number dependents affected by changes in employment (000)		34 276.3	4 426.8	13 061.3	4 735.2
Total number people affected by changes in mining output (employed + dependents)		37 887.5	4 924.7	14 860.9	5 546.5
Population (m)		13.1	13.4	15.6	17.5
Total number affected above as % of population		0.29%	0.04%	0.10%	0.03%
Change in social corporate investment spending (MKbn) 2000 prices		(0.002)	(0.002)	(0.003)	(0.004)
(A) change in tax income (MKbn) 2000 prices		(0.288)	(0.328)	(0.471)	(0.536)
(B) change in royalties to government (MKbn) 2000 prices		(0.02)	(0.02)	(0.02)	(0.03)
% of (A) and (B) effect on total tax income		-1.5%	-1.6%	-1.7%	-1.5%

(1) Due to industry linkages and secondary spending effects

Namibia

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GD	Mining industry value (US\$bn)
	2005	12.43	6.30
	2006	16.53	6.17
	2007	16.14	5.77
	2008	16.44	5.89
	2009 (forecast)	16.78	5.94
Total number of people nationally employed by this sector (2008)	8,100 (2% of total employment)		
National Employment dependency ratio	4.9		
Main mining sectors	Diamonds Copper Uranium Gold Zinc Lead Other: Manganese, Fluorspar, Wollastonite, Silver, Tourmaline, Aquamarine, Garnet, Amethyst, Topaz and Tungsten.		
Total mining exports	80% of mining output exported N\$10.1 billion (at current 2008 prices) 40% of total exports (at current 2008 prices)		
Current account balance	N\$ 1.8 billion deficit (US\$ 0.22 billion deficit)		
Main export markets	UK US Germany South Africa		
Major mining companies operating in the country	Namdeb Rössing Uranium Diamond Fields International AngloGold		
Mining royalties as % of total revenue	6%		

Summary Table (Continued...)

Community Social Investment as % of total revenue (selected listed companies)	0.1%	
Companies that have closed / suspended their operations or might do so in the near future	<ul style="list-style-type: none"> • De Beers Marine (suspended operations on December 14, 2008). • Namdeb (reduced back production in line with prevailing demand). • Weatherly Mining Namibia (closed its remaining two operations). • Namibian Resources (placed its operations in Namibia on care-and-maintenance). • DFI (suspended operations) 	
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	Yes - The government has implemented proactive counter-cyclical policies and programmes comprising of various fiscal and monetary policy measures, in its attempt to mitigate the negative spill over of the global financial crisis on the local economy.	
Impediments to mining industry (in addition to the global financial crisis)	Lack of water resources Availability of fuel and electric power High transport costs	
Other socioeconomic indicators	Unemployment (% of labour force)	31%
	Poverty (1994) (% of population below national poverty line)	67%
	Food security: per capita food production (2004)	118
	Gini coefficient (1994)	0.6
	Political stability (2006)	79.3
	HIV / AIDS prevalence rate (% of population)(2008)	15.3%

Source: BMI (2008)

Overview of the Mining Sector⁴¹

Namibia is the world's sixth-largest producer of uranium and among the largest gem-quality diamond producers in value terms. The country also features among the top five nations around the globe for its zinc, copper and lead reserves. Other minerals produced include gold and silver, as well as a large variety of gemstones, such as tourmaline, aquamarine, garnet, amethyst and topaz.

Currently the mining industry of Namibia contributes a small percentage to global mining overall, however, this does not account for the uranium and diamond mining potential of the country. To expand the revenue earning potential of its mining industry, the Namibian government is making efforts to establish a strong domestic market for diamond cutting and polishing. Taken together, these factors underscore the importance of the Namibian mining industry for its economy. It has been forecast that the mining industry is expected to continue growing even in the short term, and that the industry will contribute over 17.8% to the nation's GDP in 2012.

• **Diamonds**

The primary diamond deposits are concentrated in north-eastern and eastern Namibia. Diamonds are also mined from secondary deposits located along the Orange River, and in the southern portion of the coast. Such diamonds are of exceptionally high quality, with about 90% being of gem quality. At an estimated resource potential of over 1.5bn carats, Namibia also has the richest marine diamond deposits in the world.

• **Uranium**

During the last few years, Namibia's uranium resources have drawn a lot of attention, and the Namibian government has subsequently placed a temporary moratorium on issuing uranium exploration licences. The government is also putting improved safeguards in place to ensure that uranium originating in the country is put to use for peaceful purposes only. In the future, the government is planning to impose more stringent regulations considering the strategic importance of,(and rising demand for) the metal.

• **Other Minerals**

Copper, zinc and lead exploration activities are conducted in southern Namibia, as well as within the carbonate platform sediments in northern Namibia, while gold is mined at the Navachab mine, located near the town of Karibib in central-western Namibia.

The Namibian mining industry faces severe challenges in certain areas which may adversely affect the industry’s future prospects if not met. A lack of water resources is a key factor that discourages investments in the mining industry. Also, as a result of the nation’s underperforming infrastructural facilities, mineral exploration has been slow thereby constraining the growth of the Namibian mining industry. The development of mining activity has been constrained in the past by inadequate investment in mineral exploration, and transportation costs to faraway markets remain high.

Overview of the Major Mining Companies

The bulk of exploration and mining in Namibia focuses on diamonds, uranium and metals such as copper, lead and zinc. A number of major players, including Anglo American, Rio Tinto and De Beers, have exploited the great potential for the exploration and mining of mineral resources. Government support for promoting a competitive environment in the mining industry can be gauged from the fact that on an average, the mining ministry issues about 90 prospecting licenses and six mining licenses every year.

Small-scale mining is encouraged and represented by two organisations: the Association of Prospectors and Miners of Namibia, and the

Small Miners Association of Namibia. The Ministry of Mines has established the Namibia Small Miners Assistance Centre to provide geo-technical support, while the Minerals Development Fund offers financial support to small-scale miners.

Brief profiles of selected companies are provided in Table 20 below:

Government role in the mining sector⁴²

The Ministry of Mines and Energy (MME) is the apex body regulating the Namibian mining industry. Even though the minerals rights are vested in the state, land belongs to private individuals, companies or the government. There is also a Minerals Board of Namibia that advises the ministry generally, or in particular matters. Namibia’s minerals policy was published in 2002. It establishes the guiding principles of the government regarding development of the mining industry. The Minerals (Prospecting and Mining) Act of 1992 governs exploration and mining in Namibia, while The Diamond Act of 1999 regulates the holding, transport and processing of diamonds.

In October 2008, the MME said that it would amend Section 114 of the country’s Mineral Act to make the payments of royalties by mining companies mandatory. This would be levied on all minerals mined or discovered during prospecting. However, the section allows the Minister of Mines and Energy to extend the royalty on non-diamond mining sectors only on a case-by-case basis and when a company sells its output via transfer pricing or below market value. The amendment has been reviewed by the ministry and the amendment will soon be introduced into parliament.

Although economic policy will be broadly unchanged under the third five-year national development plan (NDP 3), which covers fiscal years 2007/08to2011/12 (April-March), concern over an economic slowdown will force policymakers to focus on macroeconomic stability. The main goals of NDP 3, expressed in eight key areas corresponding to the main objectives of the Vision 2030 long-term national development plan that includes: accelerating economic growth to an annual average of 5-6.5percent; reducing poverty and income inequality; creating private-sector employment, especially in manufacturing; and

Table 19: Namibia’s prominent mining companies

Mining Company	Commodity
Namdeb	Diamonds
Diamond Fields	Diamonds
Diaz Point Exploration	Diamonds
Sonnberg Diamonds	Diamonds
SAKAWÉ Mining	Diamonds
Weatherly International	Copper
Ongopolo Mining	Copper
Tsumeb Corp	Copper
Kumba Resources	Zinc
Rössing Uranium Ltd.	Uranium

Table 20: Profiles of selected mining companies

Mining Company	Commodity	Description and Recent Developments
Namdeb Diamond Corporation	Diamonds	<ul style="list-style-type: none"> In Namibia, De Beers operates through Namdeb, which is owned in equal shares by the Namibian government and De Beers Centenary The company is investing NAD900mn (US\$119.95mn) in projects such as marine-dredging, replacement of earth-moving equipment, prospecting and research Namdeb sells its diamonds through De Beers' London-based marketing arm, Diamond Trading Company. But this is likely to change as De Beers has agreed to help Namibia expand its gem polishing industry In March 2007, Namdeb finalised a two-year work programme for the Kavango project with Motapa Diamonds. By committing to solely fund this programme, Namdeb earned a 51% stake in the project and could take control of an additional 14% stake by funding a feasibility study In December 2008, Namdeb imposed a quota on Namibian Resources' production. However, the world diamond markets had declined further since then, with large reductions in quantities of both rough and polished diamonds sold, and substantial declines in open-market diamond prices <i>Namibian Resources, which mines diamonds on behalf of Namdeb, will place its operations in Namibia on care-and-maintenance, while the outlook for diamond markets remained uncertain.</i> <i>Namdeb and De Beers Marine Namibia reduced production for the remainder of 2008 and early 2009, as a result of high inventory levels and low liquidity impacting on wholesale clients' ability to purchase new rough diamond supplies. The producer said it would strive to reduce the impact on its employees, however, a reduction in staff was inevitable. De Beers Marine stopped operations on December 14, 2008 and their five vessels are now all in harbour at Saldanha Bay.</i>
Diamond Fields	Diamonds	<ul style="list-style-type: none"> Diamond Fields Namibia owns a 100% interest in the 71,600ha Namibian marine diamond project and pays a 10% royalty to the Government of Namibia. In July 2007, an earlier signed joint operation agreement between the company and Namibian Bonaparte was amended, resulting in the expansion of the scope of operations of DFI's ML111 mining licence, offshore Namibia. <i>Diamond Fields International has indefinitely suspended the operations of its diamond mining vessel, the DF Discoverer, which has been recovering diamonds off the coast of Namibia. The suspension was prompted by "the severity of the global economic downturn and the sudden drop in the price of rough diamonds."</i>
Weatherly International	Copper	<ul style="list-style-type: none"> Weatherly is currently operating four copper mines and a smelter in Namibia. This includes the Matchless mine which is operated by contractors. The company has an annual production of around 15 000 tons, and a smelter facility capable of processing 35 000 tons of blister copper. <i>Although Weatherly's production for the last quarter, September 30, reached a record high of 2 643 tons of copper compared to 2 162 tons in the preceding quarter, it was nevertheless negatively affected by the sharp fall in international copper prices and as a result has had to lay off 600 workers.</i>

Profiles of selected mining companies (Continued...)

Rössing Uranium Ltd. Uranium

- *This led the Mineworkers Union of Namibia to call on the government to avert the looming job losses through the nationalisation of the affected Weatherly's mining operations*
- UK-based Rio Tinto owns a 69% stake in Namibia-based Rössing Uranium, while the Namibian government and South Africa-based Industrial Development Corporation hold the remaining 31%
- Rössing Uranium operates an open pit uranium mine that produces uranium oxide. Output from the mine is exported to European, American and Asian electricity producers.
- The Rössing mine is the sixth-largest producer of uranium in the world and accounts for 7.7% of the global output
- *The company is planning to undertake a capacity expansion programme at the mine following which the mine's capacity would increase significantly from the current 4000-4500tpa in 2010 and 2011*

Sentences in italics represent the direct impact the global financial crisis has had on the company

speeding up land redistribution. The government also aims to change the procedures governing foreign investment in Namibia, as the current regulations and incentives have failed to attract the hoped-for level of investment. There is, as yet, no commitment to privatising Namibia's large parastatal sector, but mining companies will be expected to transfer 15percent of their equity stakes to black partners by 2011.

The Namibian government implemented proactive counter-cyclical policies and programmes comprising of various fiscal and monetary policy measures, in its attempt to mitigate the negative spill over of the global financial crisis on the local economy. These include:

- cushioning companies and households against the skyrocketing oil;
- the Bank of Namibia has kept interest rates unchanged, in its attempt to contain the cost of servicing mortgages and other loans;
- scrapping value-added taxes on essential foodstuffs.

Impact of the Global Financial Crisis on the Namibian Economy and its Mining Sector General

The mining sector is set to experience a slowdown in the short-term due to the decline of commodity prices and the credit-crunch, which has adversely affected liquidity and, by extension, financing for capital activities such as exploration.⁴³

Furthermore, Namibia's nascent diamond cutting and polishing industry, together with the government's beneficiation programme, is set to be hard hit by the global financial crisis as major diamond producers have announced plans to cut back production. This will further directly impact on the Namibian diamond industry, which contributes significantly the Namibian economy.

The cumulative local economic effects of this global crisis threaten to not only derail the attainment but also reverse Namibia's national development objectives, such as those relating to growth, employment creation and poverty alleviation. Mining revenue may be impacted negatively, and with less money in circulation it would equally mean less money for financing essential public development initiatives.

While no regular employment data is gathered in Namibia, unemployment is generally reckoned to be about 35 % of the adult population. The ranks of the unemployed were swelled when Weatherly Namibia closed all its mining operations in November, putting 600 people out of work. Officially, the mines were only decommissioned pending better economic conditions, largely dependent on an improvement in the copper price. However, it would seem such a recovery is some way off. In November, a consignment of diamonds from Namdeb's mines was sent back from London after De Beers' Diamond Trading

Company decided to cancel sales as prices dropped and interest waned. As a result, Namdeb faced an immediate cash flow crisis and had to seek a N\$650 million guarantee for its overdraft facility from government and De Beers.

The expected long depression in the diamond market led to Namdeb starting to lay off 600 workers in November. While initially the company was looking at voluntary retrenchments, it is expected that compulsory lay-offs would feature throughout 2009. The company had been planning to reduce its workforce in 2009-10 anyway as it closes land-based mining operations and concentrates on marine deposits. Concerns were expressed about the viability of the diamond cutting and polishing industry in Namibia as it seemed likely there would be few diamonds to work on as international demand decreased. In addition, the town of Oranjemund, Namdeb's mining base in the south of Namibia, could become a ghost town as residents are retrenched and move away.

The worsening unemployment situation was not helped by an apparently unintended outcome of the new Labour Act due to come into force on 1 March 2009. The Act bans labour hire companies which recruit employees for other companies, often on a temporary and casual basis without benefits. The practice has been criticised for allowing employers to utilise cheap labour without covering benefits like pensions and medical insurance. However, it emerged that hundreds of the HIV/AIDS counsellors and support staff also work for the Ministry of Health on this basis, having been hired by a recruitment company. From 1 March 2009, they are expected to lose their jobs.

It was hoped that some positive developments would offset the negative news. The uranium sector remained optimistic in view of the world's longer-term interest in developing nuclear energy sources and plans for two new mines in the Erongo region remained on track. In addition, Germany construction materials company, Schwenk, is proceeding with the establishment of

a N\$2.5 billion cement factory near Otavi. The tourism sector started to report a decrease in bookings in 2009. However, it was not expected to completely collapse, particularly as Namibia's tourism market is high-ended and tends to attract wealthier visitors who may still have disposable income for holidays. Improved rains in January also brought hope that crop yields would be higher in 2009.

The Bank of Namibia adjusted its economic forecast for the year, saying economic growth would be 0.4 % down from the 1.1 % it forecast in February. Old Mutual economist, Robin Sherbourne predicted the economy would shrink by 1.6 %. The Bank of Namibia said Namibia's economy grew by 2.7 % in 2008, as compared to 4.1 in 2007.

Anticipated Short-, Medium- and Long-Term Impacts of the Crisis on Namibia

Using a high-level model developed by the team, Table 21 presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

The main points that emerged from the model are:

- The mining sector contributed almost 10 percent towards output and 2 percent towards employment in Namibia in 2008. About 80 percent of mining output is exported.
- The Namibian mining sector is expected to decrease by 19 percent and mining employment by 23 percent during 2009. Over the medium and longer term (2010-2020), an increase in the international uranium price is expected to offset the employment and output decreases in the mining sector. Mining output and employment are expected to decrease throughout 2009 and 2010 slowly recovering from 2010 to 2020 – the net effect being higher mining output and employment levels in 2020 compared to 2008.

Table 21: Forecasted impact of the global financial crisis on the Namibian economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO VARIABLE	current	short term		medium term	long term
	2008	2009	2010	2015	2020
Mining GDP (1995 prices) N\$m	1 997	1 614	1 592	1 796	2 124
Mining employment	8 100	6 262	6 156	7 134	8 708
Mining GDP (% real change)		-19.2	-1.4	12.8	18.3
Mining employment (% change)		-22.7	-1.7	15.9	22.1
Changes in mining output due to Global financial crisis (N\$m) 1995 prices		(383)	(22)	204	328
Changes in mining employment due to Global financial crisis		(1 838)	(105)	978	1 575
Expected indirect impact on GDP(1) N\$m		(253)	(14)	134	217
Expected indirect impact on employment (1)		(1 213)	(70)	645	1 039
Total GDP change (N\$m) 1995 prices		(636)	(36)	338	545
Total employment change (average Namibian economy)		(3 052)	(175)	1 623	2 614
Change as % of GDP		-3.0%	-0.2%	1.3%	1.7%
Change as % of formal employment		-0.8%	0.0%	0.4%	0.6%
Number of dependents : formal employed		4.9	4.9	4.7	4.4
Number dependents affected by changes in employment		15 017	860	7 671	11 586
Total Number people affected by changes in mining output (employed + dependents)		18 068	1 035	9 294	14 200
Population m		2.13	2.15	2.28	2.43
Total Number affected above as % of population		0.8%	0.0%	0.4%	0.6%
Change in social corporate investment spending (N\$m) 1995 prices		(3)	(6)	7	8
(A) change in tax income (N\$ m) 1995 prices		(188)	(11)	100	161
(B) change in royalties (N\$ m) 1995 prices		(46)	(3)	24	39
% of (A) and (B) effect on total tax income		-3.7%	-0.2%	1.6%	2.1%

(1) due to industry linkages and secondary spending of / ects

South Africa

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GDP	Mining industry value (US\$bn)
	2005	7.3	15.8
	2006	9.9	25.2
	2007	9.7	20.7
	2008	9.5	17.7
Total number of people nationally employed by this sector (2008)	510 000 (3.8 % of total employment)		
National Employment dependency ratio	3.3		
Main types of mining	Gold PGM Diamonds Coal Copper Chrome Ore Ferrochromium Titanium minerals Zirconium Ferro-alloys of manganese	Fluorspar Rutile Ilmenite Phosphate rock Manganese Nickel Ferrosilicon Vanadium Kynaite Chromite	Palladium Aluminium Iron ore Uranium Zinc Vermiculite Lead Phosphate rock Alumina-Silicate Antimony
Total mining exports	65% of mining output exported 190 billion Rand (at 2008 current prices) 29% of total exports (at 2008 current prices)		
Current account balance	ZAR 146 billion <i>deficit</i> (US\$17.7 billion <i>deficit</i>)		
Main export markets	China Japan UK US		
Major mining companies operating in the country	Anglo American BHP Billiton African Rainbow Minerals Gold Fields Xstrata Implats Lonmin Plc		

Summary Table (Continued...)

Mining royalties as % of total revenue	1.5%												
Community Social Investment as % of total revenue (selected listed companies)	1%												
Companies that have closed their operations or might do so in the near future	<ul style="list-style-type: none"> • BHP Billiton and African Rainbow materials have reduced capacity at some plants • Assmang (closes 3 furnaces) • Massive job cuts across major companies 												
Total number of people that have been retrenched from the mining sector in the past 6 months	Section 189 notices have already been issued for the retrenchment of 35000 mining employees (although some analysts believe this figure could rise to 40000).												
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	Yes – the 2009 Budget speech committed the national government to a number of reforms aimed at boosting the industry and minimising job losses .												
Has there been any recorded political or socioeconomic unrest as a direct result of the downturn in the mining sector?	Not yet – while there have been several miners’ strikes over the past year, they appear to have mainly been as a result of poor safety standards or the rising cost of electricity.												
Impediments to mining industry (in addition to the global financial crisis)	<ul style="list-style-type: none"> • Overregulated labour market • Low capital and labour productivity • Relatively high cost of SA labour • High HIV and AIDS rates among miners • BEE requirements and perceived uncertainty over implementation • Aging and under-capacitated rail and port infrastructure 												
Other socioeconomic indicators	<table border="0" style="width: 100%;"> <tr> <td>Unemployment (% of labour force)</td> <td style="text-align: right;">23%</td> </tr> <tr> <td>Poverty (2006) (% of population below national poverty line)</td> <td style="text-align: right;">44%</td> </tr> <tr> <td>Food security: per capita food production (2004)</td> <td style="text-align: right;">104</td> </tr> <tr> <td>Gini coefficient (2006)</td> <td style="text-align: right;">0.64</td> </tr> <tr> <td>Political stability (2006)</td> <td style="text-align: right;">51</td> </tr> <tr> <td>HIV and AIDS prevalence rate (% of population) (2008)</td> <td style="text-align: right;">18.1%</td> </tr> </table>	Unemployment (% of labour force)	23%	Poverty (2006) (% of population below national poverty line)	44%	Food security: per capita food production (2004)	104	Gini coefficient (2006)	0.64	Political stability (2006)	51	HIV and AIDS prevalence rate (% of population) (2008)	18.1%
Unemployment (% of labour force)	23%												
Poverty (2006) (% of population below national poverty line)	44%												
Food security: per capita food production (2004)	104												
Gini coefficient (2006)	0.64												
Political stability (2006)	51												
HIV and AIDS prevalence rate (% of population) (2008)	18.1%												

Source: BMI (2008)

Overview of the Mining Sector

South Africa’s mining industry is one of the world’s largest players, and the has always figured among the leading mining nations, both in terms of diversity and quantity of minerals produced. It is the world’s leading producer of gold, PGM, chrome ore, vermiculite and alumino-silicates, manganese ore, titanium minerals and fluorspar. In 2007, some 53 different minerals were produced from 1 414 mines and quarries, 50 of which produced gold, 31 platinum-group minerals, 96 coal and 344 diamonds, all as primary commodities.⁴⁴

Gold, once the pillar of South Africa’s wealth, has seen a consistent decline. Although until 2007-2008, the nation had retained the title of the world’s largest producer of gold, costs have risen and production has slowed. Platinum and coal now generate more wealth for the mining-centred economy. The industry also faces stiff competition from other African countries that have stabilised economically and politically over the recent years. Many other mining avenues in the continent are less costly than the deeper, more complex mines in South Africa.⁴⁵

In 2007, the mining and quarrying sector contributed R135.5 billion or 7.7 % to the Gross Domestic Product, 13.4% higher than in 2006. South Africa's total primary mineral sales amounted to R223.9 billion, 14.5% higher than in 2006. However, mining experts have termed South Africa a "mature market", where it is hard to locate any substantial, easy-to-exploit finds any more, and as a result, over the last three decades, the reliance on mining for economic growth has been declining (it was at record high levels in 1980 contributing over 20 percent to GDP). But mining continues to be a key driver of the economy as denoted by statistics from the Chamber of Mines (2007):⁴⁶

- 6.8percent direct contribution to GDP; the indirect multiplier effects and induced effect of mining takes the contribution to about 17.5percent of GDP in total. Indirect multipliers include backward linkages (e.g. transport, professional services), forward linkages (e.g. electricity generation) and the induced effect via mining generated incomes;
- 30percent of merchandise exports and more than 50percent if secondary beneficiated mineral exports are added;
- 8.9percent of total fixed investment and 18% if the indirect effects are added;
- 35percndt of the market value of the JSE (R1.6 trillion);
- Over the past 12 years a total of R141 billion worth of empowerment deals have been concluded in the resources sector, making it the largest contributor to empowerment by value;
- 6percent of the people employed in the non-agricultural formal sector, but 16percent if indirect effect is added;
- Paid R20.9 billion in direct taxes (which is 18.5percent of the total company tax paid to government), as well as a substantial portion of indirect taxes to the fiscus in 2007;
- The sector's bulk commodity exports represent 53.5 percent of the volume of Transnet's rail and ports;
- About 37percent of the production of liquid fuels via coal, which saves about R30 billion annually in foreign exchange.

The mining sector employs 2.9 percent- of the country's economically active population, and employment increased by 8.6 percent to 495

474 in 2007. It is further estimated that another 165 000 workers are employed in associated industries that either supply products to, or use products from the industry. Furthermore, as much as 400 000 more jobs are induced by the spending multipliers of the mining sector. Approximately five million people are directly dependent on mine employees for their daily subsistence.⁴⁷

Overview of the Major Mining Companies⁴⁸

There are more than 600 mining companies operating in South Africa. Apart from a few large, listed players operating on a global scale, the rest are all small and medium-sized companies. Lately, smaller companies have been more active than their larger counterparts in reserve exploration, while the larger players have mainly been focusing on cross-acquisitions of mining properties and reserves.

BHP Billiton and Anglo American are among the key mining players in South Africa. The world's three leading platinum producers – Anglo Platinum, Impala Platinum Holdings and Lonmin – have for long controlled the smelters and refineries along the Bushveld complex (holding the world's largest deposits of contiguous PGMs).

Brief profiles of selected companies are provided in Table 23 below:

Government role in the mining sector

The mining sector is governed by the following key pieces of (existing or proposed) legislation:

- **The Minerals and Petroleum Resources Development Act**

The Minerals and Petroleum Resources Development Act (MPRDA) regulates the prospecting for, and optimal exploitation, processing and utilisation of minerals, provides for safety and health in the mining industry, and controls the rehabilitation of land disturbed by exploration and mining. This Act defines the entire regulatory environment of the minerals industry, from rights and ownership to mineral sales, beneficiation and marketing. It also pertains to all other industries and entities that have an influence on the minerals business.

Table 22: South Africa's prominent mining companies

Mining Company	Commodity
Anglo American	Gold, platinum, diamonds, lead, zinc, coal
Anglogold Ashanti	Gold, uranium
Anglo Platinum	Platinum, copper, nickel
BHP Billiton	Petroleum, aluminum, base metals, carbon steel materials, diamonds, coal, stainless steel
Ingwe Coal	Coal
African Rainbow Minerals (ARM)	Ferrous metals, PGM, nickel. Coal, copper, cobalt, gold, other base metals
Assmang	Iron Ore
Harmony Gold Mining	Gold
Samancor Chrome	Chrome
Samancor Manganese	Manganese
Kumba Iron Ore	Iron Ore
Goldfields	Gold
Kalagadi Manganese	Manganese
Nkomati Nickel Mine	Nickel
Rio Tinto	Copper
Impala Platinum (Implats)	Platinum
Lonmin Plc	PGM
Mittal Steel South Africa	Iron, steel
Silicon Smelters	Silicon
Exxaro	Titanium, zirconium
Highveld Steel	Vanadium, iron ore
Pretoria Portland Cement	Cement
De Beers	Diamonds
Van den Heever Fluorspar Works	Fluorspar

- **Mineral and Petroleum Resources Royalty Bill**

Investors were apprehensive about a new royalty bill, which was likely to replace all existing local royalties with a national scale set between 1 percent and 5 percent of gross sales.* The second draft of the Mineral and Petroleum Resources Royalty Bill was released in early October 2006, and proposed that a tax be levied on revenues, rather than on profits of mining companies. This is a toned-down version of the initial drafts of 2003.

- **Diamonds Amendment Act**

The Diamonds Amendment Act (2005) provides for the increased access to rough diamonds for jewellery manufacturing in South Africa; maintaining security of supply of rough diamonds to promote the beneficiation industry in South Africa thus creating jobs; and increasing participation throughout the diamond value chain.

- **BEE requirements**

The government further introduced a mining law in 2004 that required mining companies or their local operations to have 15 percent black ownership by 2009, increasing to 26 percent by 2014. The law also stipulated company targets for improving levels of nutrition, literacy and housing among the workforce, as well as improving safety conditions.

- **Other legislation**

South Africa also reformed two other pieces of mining legislation, which regulate the precious metals and diamonds industries respectively, and came into operation on the 1 July 2007. The Precious Metals Act (2005) provides for acquisition, possession, smelting, refining, beneficiation, use and disposal of precious metals. Precious metals include gold and the platinum group metals and silver have been excluded from the definition of precious metals.

* Diamonds would qualify for the 5% levy, and most other minerals would require a payment between 1% and 3%. Moreover, the proposed royalty on refined gold has been cut to 1.5% from the 3% proposed in 2003, while royalty on refined PGMs is down to 3% from the previously stated 4%. Royalties on refined heavy minerals were proposed at 2%, while it will be 3% on unrefined heavy minerals. Base metals and steel industry minerals would attract a royalty of 2% (for refined material) and 4% (unrefined).

Table 23: Profiles of selected mining companies

Mining Company	Commodity	Description and Recent Developments
Anglo American	Gold, platinum, diamonds, coal, ferrous and base metals and industrial minerals	<p>Anglo American consists of a number of different subsidiaries, which include:</p> <ul style="list-style-type: none"> • AngloGold Ashanti: owns 51% of this independently managed subsidiary and represents the company's gold interests. Mponeng is the company's key gold project in the South African pipeline. In February 2009 the company further cut its stake in South Africa's AngloGold Ashanti to 11.88%. Anglo has said it eventually plans to dispose of the remaining stake in AngloGold, the world's third-biggest gold company by production, to better focus on its core businesses of base metals, iron ore and platinum. • AngloPlatinum: managed subsidiary that processes, refines and markets entire range of PGM. Owns six mines, two smelters, a base metals refinery and precious metals refinery. Three main platinum projects in the pipeline: Mototolo, Marikana and Potgietersrust • Anglo American's diamond interests are represented by 45% shareholding in the US-based DB Investments. The company's coal interests are held through wholly-owned Anglo Coal • <i>Announced in February 2009, that due to the global economic outlook as well as the continuing volatility and weakness in commodity prices it would retrench 19000 workers (10000 from South Africa and the remaining amount from its South Africa, Australian and South American operations).</i> • <i>Company operating profit from core operations was up 10% to \$9.8-billion, but total underlying earnings of \$5.2-billion were down 9%.</i> • <i>Total group profit attributable to equity shareholders was down 29% at \$5.2-billion.</i>
BHP Billiton	Aluminum, coal, manganese, titanium minerals	<ul style="list-style-type: none"> • The Aluminum operations comprise the fully owned and operated Hillside and Bayside smelters at Richards Bay. • Through its wholly-owned subsidiary, Ingwe Collieries, the company owns 6 coal mines. The Company announced in March 2008 that it will invest US\$975 million in a coal mining project in South Africa. BHP Billiton's South African coal subsidiary, one of the world's largest coal exporters, will produce 34-million tons in 2009 compared to 48-million last year. BHP's output is set to fall after the company sold its Optima coal mine in a black economic empowerment (BEE) deal. • Its interest in titanium minerals consists of its 50% effective interest in Richards Bay Minerals in South Africa • The company and the South African government are progressing in their discussions on the fiscal framework under which the drilling for oil offshore of South Africa's West Coast could proceed. BHP Billiton has had two oil exploration concessions off South Africa's West Coast, and has aspirations to drill an exploration well in deep-water exploration blocks situated 175 km northwest of Cape Town. • <i>In February 2009, BHP Billiton announced that the downside risk in manganese volume projections was continuing into the second-half, despite the cutbacks that had already been made. The company is already operating its manganese business at virtually half of its available capacity, because that was as much as the market was prepared to accept.</i>

Profiles of selected mining companies (Continued...)

African Rainbow Minerals	Ferrous metals, PGMs, nickel, coal, copper, cobalt and other base metals	<ul style="list-style-type: none"> • BHP Billiton, reported in February 2009 a first-half net profit of \$2.6-billion, a decline of 56.5% compared with the same period a year earlier. This is due to the unprecedented fall in commodity prices of almost 50%. Stripping out once-off items, profit increased 2.2%, to \$6.1-billion, compared with \$5.99-billion a year ago. • ARM is a diversified South African mining company that has five areas of interest: 1) ferrous metals through its holding in Assmang Ltd, 2) PGMs and nickel held through a range of JVs and partnerships, 3) Coal through its interest in Xstrata Coal, 4) Copper, cobalt and other base metals outside of South Africa through TEAL Exploration & Mining, 5) Gold through its interest in Harmony Gold Mining Company • Will jointly develop an open pit thermal coal mine in Mpumalanga with Xstrata, to be in full production by 2011. • Ferrous-metals miner Assmang will close three high-carbon ferromanganese furnaces at its Cato Ridge works, because of "extensive" steel production cutbacks. The closures, effective December 25, will leave three furnaces still in operation at Cato Ridge, or about 60% of capacity. Cato Ridge Alloys will also stop producing medium-carbon ferromanganese, effective immediately. • The company stated that its cash has increased to R3.7-billion from R1.2-billion a year ago and after having trebled its headline earnings to R2.2-billion in the six months to December 31 2008 on the back of strong performance in its ferrous division. The company will spend R9 billion over the next three years in order to cautiously grow the company.
Gold Fields	Gold	<ul style="list-style-type: none"> • Gold Fields Limited was formed in January 1998 from the merger of the gold assets of Gold Fields of South Africa and Gencor. Gold Fields has 145 million attributable ounces of mineral resources and 73 million attributable ounces of reserves. The company is one of the world's largest unhedged producers of gold • In January 2009, the company's balance sheet remained robust with manageable debt levels and adequate liquidity, despite the current credit crisis. Production at the South African operations had also increased by 2% • Gold has proved resilient to the downturn in the commodity market as investors have sought a safe haven investment. It is estimated the gold price may reach \$2 000/oz in the next year if the dollar falls, and there is increased international infrastructure spend.
Implats	PGM	<ul style="list-style-type: none"> • Impala Platinum Holdings Ltd (Implats) which is in the business of mining, refining and marketing platinum group metals, is the second largest platinum producer in the world. Implats is also involved in the secondary sourcing of PGMs where the company's core refining competencies offer a competitive advantage. • Implats currently produces around 1.3 million ounces of platinum per annum from its operations on the western limb of the Bushveld Complex with new operations planned to come on stream over the next 12 months on the eastern limb. Low-cost, low-risk explorations and strategic alliances on both existing and new projects should expand this base in coming years.

Profiles of selected mining companies (Continued...)

		<ul style="list-style-type: none"> • It has maintained its position as the leader in its sector with high levels of productivity and cost-effective production. Implats has been able to increase its overall production significantly by using excess smelting and refining capacity for concentrating and processing materials from third parties. • <i>Implats has announced that it will cut its capital expenditure programme by R10-billion, to R13-billion, for the next four years, excluding this year, owing to the current economic crisis. The company had deferred both its Marula Merensky and Leeuwkop projects</i> • <i>In February 2009 the company reported a 15% decline in platinum production to 878 000 oz and the cutting of production targets and capital expenditure, due to the tough prevailing economic conditions.</i> • <i>Also in February 2009, Implats posted a 13.4% increase in half-year profit, despite an "extremely disappointing" production and cost performance. However, revenue for the period had declined by 0.5%</i>
<p>Lonmin Plc</p>	<p>PGM</p>	<ul style="list-style-type: none"> • Owns four mining properties in South Africa that processes the concentrate from its mines through its smelter and refineries to deliver finished metals to the market • The company produces over 25.11 tons of platinum per year and has plans to expand its operations through investments, mergers and acquisitions • In October 2006, Lonmin announced US\$1 billion worth of investment in South Africa over 2007-2010 • The company was severely impacted by the Eskom power outages and lost an estimated 15000 saleable ounces of platinum in concentrate • In February 2009, the company announced it had taken control of AfriOre's operations, including its platinum-group metals assets at the Akanani project on the northern limb of the Bushveld Complex • <i>Overall refined platinum production for the quarter ended 31 December 2009, was down 14% to 132 935 oz, compared with the year before, while platinum-group metals production had declined by 12% to 243 818 oz. As a result of this decline, the chair of the company resigned.</i> • <i>Lonmin stated in November 2008 that it would retrench thousands of employees and stop all open cast mining operations in response to falling demand and the global economic turmoil. In February 2009 the company announced that it would retrench 5 500 miners</i>

Sentences in italics represent the direct impact the global financial crisis has had on the company

• **Recent initiatives**

In the 2009 budget speech, the Minister of Finance recognised the contribution of the mining industry to the economy, as well as the pressure the industry was facing in light of the global financial crisis and the reduced commodity prices, and committed the national government to:⁴⁹

- deferring the mining royalties regime from this year to 2010, which provides a boost to the industry of approximately R1.8 billion, that will assist in minimising job losses;
- considering the formation of an agency to be jointly managed by business, labour and government to invest in the economic development of mining towns, or labour-sending areas affected by retrenchments;
- disbursements aimed at building capacity by encouraging investment in power generation, transport networks and telecommunications all of which are critical to the mining industry.

BOX 7: Impact of the National Electricity Crisis on the Mining Sector

South Africa has historically enjoyed a large power reserve margin, but the national electricity crisis in 2008 was a result of increased demand, a declining reserve margin and the effects of unplanned outages. The mining sector, which is particularly energy-intensive, was very badly affected as mines were without electricity for up to 5 days. Following power shortages and a series of electricity cuts affecting the mining industry from early 2008, the government sparked controversy in March by indicating its support for proposals by Eskom, the state-owned power utility, to raise its tariffs by up to 60%. The proposed increases were criticised by both the ruling African National Congress (ANC) and by the Congress of South Africa Trade Unions (COSATU). The mining industry's average increase in electricity costs will be about 29%, which totals an extra R1.6 billion cost to the industry. Mining output fell by 10.7% year on-year in January 2009, a drop attributed directly to Eskom's sporadic power shedding in the opening months of 2008 and the subsequent restricted supply of electricity to the mining sector. According to a recent survey, approximately 89% of mining companies indicate their turnover was adversely impacted, particularly in the deep level mines.

Furthermore, trade union Solidarity said that up to 20000 mining jobs could be at risk because of the electricity cut-backs and higher charges. As a result, the mining sector was affected by nation-wide strikes stage by COSATU in July and August 2008. Gold mining operations were affected substantially, with AngloGold Ashanti saying no shafts were operating, while Harmony and Gold Fields said that their operations were limited.

Although some additional energy supplies were later released, the move caused some to announce plans to reduce output and lay off workers. A spokesperson for Gold Fields said electricity costs represented around 10% of the company's total costs, and that any increase in tariffs would have a significant impact on its profitability. The company had earlier said it might be forced to lay off 6900 of its 53000-strong workforce because of the power cuts. BHP Billiton said it was planning to shut down Bayside, one of its three aluminium smelters because of the power rationing. Harmony Gold Mining said electricity use represented around 12% of its total costs and that it was waiting to see the size of Eskom's tariff increase, and hoping it would be below the 60% level.

The mining sector is also exploring further options to reduce its electricity usage. These include: load shift management strategies; energy efficient equipment and machinery, innovative mining solutions, and co-generation and self-generation.

Source: BMI (2008) and Deloitte analysis (2008)

Impact of Global Financial Crisis on the South African Economy and its Mining Sector

General

The surge in global prices for oil and raw materials in 2008 had a damaging impact on South Africa, contributing to higher inflation. However, with prices for oil and other commodities now falling, this will be reversed in 2009 and will potentially ease pressure on the current-account deficit. Heightened risks of a much deeper and longer downturn in global demand suggest a more severe impact on South Africa's economy.⁵⁰

Furthermore, it is anticipated that exports will benefit from a weaker rand, although this will not compensate for the global slump in demand and prices. However, demand and prices for gold (South Africa's key export), are expected to remain relatively positive, reflecting the commodity's increasing investor interest.

In terms of job losses, Section 189 notices have already been issued for the retrenchment of 35,000 mining employees (and given the dependency ratios this would affect a further 350,000 people). The platinum industry makes up 14,000 (approximately 40 percent of the planned retrenchments as this industry has been extremely hard hit by the economic downswing.⁵¹ This downturn in the mining industry will also have an impact on the associated industries and spending multipliers of the sector. Given these potential socioeconomic outcomes, the EIU has stated that there is increasing concern that a severe economic downturn and job losses will raise the potential for outbreaks of violence in the country, (especially in light of the widespread xenophobic attacks that took place in mid-2008 that highlighted national tensions between migrants and the disgruntled local poor).⁵²

Table 24: Anticipated number of mining job losses in South Africa

Country	(Potential) number of job losses	Status	Company	Source
South Africa				
Estimated Total	14 000 to 40 000	Pending	Across all companies	MineWeb (29 January 2009)
Specific companies:	3 500	Pending	De Beers	Mining Weekly (9 February 2009)
	8 200	Unconfirmed	Various brick-makers	Solidarity (18 March 2009)
	319	Confirmed	BRC DiamondCore	Solidarity (18 March 2009)
	800	Confirmed	De Beers	Solidarity (18 March 2009)
	355	Unconfirmed	Namakwa Diamonds	Solidarity (18 March 2009)
	143	Confirmed	Rockwell Diamonds	Solidarity (18 March 2009)
	390 (contract staff)	Pending	Xstrata and Merafe	Solidarity (18 March 2009)
	582 (contract staff)	Pending	International Ferro Metal	Solidarity (18 March 2009)
	5 (and 57 contract staff)	Confirmed	Simmer & Jack	Solidarity (18 March 2009)
	59	Confirmed	Kudu Granite Operations	Solidarity (18 March 2009)
	56	Confirmed	Albidon	Solidarity (18 March 2009)
	1 013	Confirmed	Uranium One	Solidarity (18 March 2009)
	1 400	Confirmed	Murray & Roberts Cementation	Solidarity (18 March 2009)
	350	Pending	Petra Diamonds	Chamber of Mines (December 2008/ January 2009)
	1 950	Confirmed	Aquarius Platinum	Mining Weekly (15 December 2009)
	5 500	Confirmed	Lonmin	Mining Weekly (24 February 2009)
	1 600	Pending	Lonmin	Mining Weekly (16 January 2009)
	1 500	Confirmed	Goldfields	Mining Weekly (30 January 2009)
	1700	Pending	DRDGold	Chamber of Mines (December 2008/ January 2009)
	3 200	Unconfirmed	Goldfields	Reuters (11 February 2009)
	10 000	Confirmed	Anglo Platinum	Reuters (11 February 2009)
	9 000	Confirmed	Anglo American	BBC (20 February 2009)
	900	Confirmed	Across SA, Australia and South America	Samancor Chrome Mining Weekly (10 March 2009)

Anticipated Short-, Medium- and Long-Term Impacts of the Crisis on South Africa

Using a high-level model developed by the team, Table 25 presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

The main points that emerged from the model are:

- Despite buoyant international commodity markets, the South African mining sector was relatively stagnant the past 4 years revealing in part a sector in its mature phase. The sector is

fairly well-diversified with platinum making the largest contribution towards mining output (35percent) followed by coal (20percent) and gold (17percent). About 65percent of mining output is exported.

- For the next year, it is predicted that mining output as well as employment will decrease by 20percent. This could mean the loss of about 100 000 jobs within the next year.
- Due to the relatively high percentage of turnover spent on corporate social investment by multinationals such as Anglo, social spending is anticipated to decrease by almost 0.02 percent of GDP.

Table 25: Forecasted impact of the global financial crisis on the South African economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO	current	short term		medium term	long term
VARIABLE	2008	2009	2010	2015	2020
Mining GDP ZAR m (2000 prices)	64 100	51 099	49 056	49 754	58 250
Mining employment (000)	510	405	388	394	463
Mining GDP (% real change)		-20.3	-4.0	1.4	17.1
Mining employment (% change)		-20.6	-4.1	1.5	17.5
Changes in mining output due to Global financial crisis (ZARm) 2000 prices		(13 001)	(2 044)	699	8 496
Changes in mining employment due to Global financial crisis (000)		(105)	(17)	6	69
Expected indirect impact on GDP(1) ZAR m		(12 351)	(1 941)	664	8 071
Expected indirect impact on employment (1) 000		(67)	(10)	4	44
Total GDP change (ZARm) 2000 prices		(25 352)	(3 985)	1 362	16 567
Total employment change 000		(172)	(27)	9	112
Change as % of GDP		-2.2%	-0.3%	0.1%	1.0%
Change as % of formal employment		-1.5%	-0.2%	0.1%	0.8%
Number of dependents : formal employed person (average SA economy)		3.3	3.2	3.0	2.7
Number dependents affected by changes in employment 000		568	87	28	303
Total number people affected by changes in mining output (employed + dependents) 000		740	114	37	416
Population (000)		49 200	49 700	52 300	54 700
Total number affected above as % of population		1.5%	0.2%	0.1%	0.8%
Change in social corporate investment spending (ZARm) 2000 prices		(260)	(41)	14	170
(A) change in tax income (ZARm) 2000 prices		(7 758)	(1 219)	417	5 069

BOX 8: Impact of the Global Financial Crisis on BEE Mining Deals

Under the government-driven black economic empowerment (BEE), since 2004 miners are required to sell 15% of their assets to black investors by 2009, and 26% by 2014. BEE deals in South Africa's mining sector have been structured to give black investors direct access to cash flows or dividends, which in turn are used to service the debt used to acquire stakes in these companies.

However, due to the recent decline in commodity prices, a substantial deterioration in earnings, and a dramatic decrease in share prices; many mining companies face cash flow issues and have placed their dividends on hold. International researchers warned at the beginning of the year that BEE deals valued at more than R220 billion were threatened by the collapse of the metal prices.

Some analysts believe the current conditions (and in particular, the potential precarious position that many of these BEE companies could be in over the coming months) will more than likely see deals being re-priced. The recent about-turn by Impala Platinum on its intended bid for Northam (and Mvelaphanda Resources) brings this issue into focus. The deal was cancelled by Impala on the basis that the current market conditions were making it almost impossible to price the assets at any mutually acceptable level effectively indicating that any current outstanding deals will likely also face a level of re-pricing.

Some of companies currently involved in announced but not yet concluded deals include WeSizwe (buying assets off Anglo Platinum and Platinum Group Metals), Anooraq (buying assets off Anglo Platinum), Pallinghurst (buying assets off Moepi and the Bakgatla tribe) and Nkwe (where Xstrata has an option to buy if the bankable feasibility study proves acceptable).

Success or failure is still very much dependant on sustainable and increasing cash flow from the underlying operations as well as increasing share prices to help ease the funding load and allowing access to the cash flows earlier than would otherwise be the case.

Other analysts fear that BEE mining deals may have to be written off by the banks; or that the government will need to act as a buyer of last resort with the stakes in the mining industry being transferred to the ministry. The potential large scale failure of many of these BEE companies could create a new cycle of uncertainty with regard to mining politics in South Africa. Even if this does not happen, the BEE stakes certainly become much more of a problem when seen in the light of an important shareholder that is incapable of taking part in capital raisings while mining law does not allow for its shareholding to drop below a minimum of 26%.

Source: RBC Capital Markets (2008), Reuters (2008) and I-Net Bridge (2009)

Zambia

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GDP	Mining industry value (US\$bn)
	2005	9.6	0.5
	2006	12.5	0.9
	2007	13.0	1.4
	2008	12.8	1.4
Total number of people nationally employed by this sector (2008)	64,000 (1,2% of total employment)		
National Employment dependency ratio	7.4		
Main types of mining	Coal Copper Cobalt Gold Uranium Nickel Zinc-lead Iron Manganese		
Total mining exports	84% of mining output exported 13424 K billion (at 2008 current prices) 72% of total exports (at 2008 current prices)		
Current account balance	3356.8 K billion deficit (US\$ 0.88 billion deficit)		
Main export markets	Switzerland South Africa China Italy		
Major mining companies operating in the country	Lithic Metals and energy MetorexLuri Gold Mines First Quantam Minerals Konkola Copper Mines		
Mining royalties as % of total revenue	1.5%		
Community Social Investment as % of total revenue (selected listed companies)	0.2%		

Summary Table (Continued...)

Companies that have closed their operations or might do so in the near future	Triple Plate Junction (suspended copper operations) Gemfields (reduction in scale of activity) Albidon (suspended nickel project) Lwansha Mining	
Total number of people s that have been retrenched from the mining sector in the past 6 months	1740 confirmed	
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	Yes – the 2009 Budget speech committed the national government to a number of reforms aimed at boosting the industry and minimising job losses.	
Has there been any recorded political or socioeconomic unrest as a direct result of the downturn in the mining sector?	No – the president of the National Union of Miners and Allied Workers stated that union representatives are careful not to seek improved deals because of the global financial crisis. ⁵³	
Impediments to mining industry (in addition to the global financial crisis)	High HIV /AIDS rates among miners Low ore grades High fuel and electricity costs Increased costs of imported equipment and supplies Inadequate transport facilities Limited national infrastructure	
Other socio-economic indicators	Unemployment (% of labour force)	19.4 %
	Poverty (2006) (% of population below national poverty line)	64%
	Food security: per capita food production (2004)	100
	Gini coefficient (1991)	60.5
	Political stability (2006)	54.3
	HIV and AIDS prevalence rate (% of population) (2008)	15.2%

Source: BMI (2008)

Overview of the Mining Sector⁵⁴

Zambia has a vast endowment of metals, gemstones, industrial minerals and potential energy resources including coal, hydrocarbons, and more recently, uranium. Globally, the country ranks seventh in the production of copper (representing 3.3percent of the western world's production) and second in cobalt (contributing nearly 20 percent of global production). Copper and cobalt constitute over two-thirds of Zambia's mining production and exports, and the mining industry currently contributes an estimated 90percent to the country's foreign exchange earnings, and attracts foreign direct investment worth US\$2.4 billion annually.

To date, mining and development activities in Zambia have mainly been centred on the Copperbelt, situated in the northwest region of the country. Further, exploration of this area since the 1930s has led to the discovery of many other metalliferous and non-metalliferous resources. Outside of the Copperbelt, little exploration has been carried out, apart from regional base metal, gold and diamond prospecting. Copper mining has dominated the mining industry in Zambia for the past 50 years and, despite the discovery of other mineral resources, it is still likely to play a major role in the future.

Besides copper and cobalt mining, the country has a number of other important minerals that include:

- **Coal**

Zambia possesses substantial coal resources and has been producing coal continuously since 1967, although since the 1980s output has fallen due to a lack of investment. Besides small-scale producers, there is only one major coal producer in Zambia, Maamba Collieries.

- **Precious Metals**

Although not well known for its gold reserves. More than 300 gold occurrences have been reported throughout the country. The majority of gold mine operators in Zambia are small-scale producers. Smaller quantities of PGMs are produced as a by-product of copper-refining on the major Copperbelt mines.

- **Base Metals and Other Minerals**

The country has substantial **iron ore** resources, which are reported to be in excess of 500 billion tons. Even with these reserves, Zambia imports all of its steel as there is no iron produced domestically. However, since March 2008, the government has been negotiating a potential deal with an Indian company to acquire iron ore exploration rights and build a steel plant within a special economic zone reserved for Indian companies.

Uranium oxide production in Zambia has been limited to only 120 000 kg which was produced from the Mkana mine between 1957 and 1959. However, there have been numerous exploration activities since then and foreign companies, as well as the Zambian government, are considering plans to develop new uranium mines in Zambia.

Nickel has only recently been discovered in Zambia. The first ever nickel mine in Zambia, Munali mine owned by Albidon Zambia Ltd (a subsidiary of Australian-based Albidon Ltd), commenced production in April 2008, and in October 2008 an exploration company established the presence of nickel at Kawako in north west Zambia.

Although current mining activity is on a small scale, **manganese** deposits are known to occur throughout the country and the estimated reserves are approximately 2 million tons of medium to high grade ore (45 to 60%).

Zambia's recent **zinc and lead** production came from the Kabwe mine that was operated by

ZCCM. Over 80 years of production, the average ore grade of this mine was 23percent zinc and 10 percent lead. The mine was closed in 1994 and the level of resource remaining in the Kabwe mine area is estimated at 50 million tons with grades of 3.8 percent zinc and 1.8 percent lead.

Overview of the Major Mining Companies⁵⁵

Historically, most of the copper mines in Zambia were owned by the state-controlled Zambia Consolidated Copper Mines Ltd (ZCCM). By 2000, the government had sold all its interests in all the state-owned copper mines in an attempt to return the industry to profitability and to boost economic growth following a decline in global copper prices since the mid1970's. The current structure of the industry reflects a picture where there are a large number of overseas players including Australia, Canada and China. China has invested over US\$500 million in mining and other sectors in Zambia over the last five years, and plans over the next five years to invest in a multi-facility free trade zone, where Chinese companies will be exempted from some taxes. The initiative is designed to draw US\$800 million in mining investment from scores of Chinese companies and create 60000 jobs.⁵⁶

Many small domestic players operate in direct mining as well as processing of raw ore.

Brief profiles of selected companies are provided in Table 27.

Table 26: Zambia's prominent mining companies

Mining Company	Commodity
Lithic Metals and Energy	Nickel
Albidon	Nickel
Metorex	Antimony, cobalt, copper, gold, fluorspar
First Quantum Minerals	Copper, gold
Zambezi Resources	Copper, gold
Luiru Gold Mines	Gold
Equinox Minerals	Copper, uranium
Konkola Copper Mines	Copper
Mopani Copper Mines	Copper
Cambishi Metals	Cobalt
Caledonia Mining Corporation	Cobalt
Maamba Collieries	Coal
Chiman Manufacturing	Manganese
African Energy Resources	Uranium

Table 27: Profiles of selected mining companies

Mining Company	Commodity	Description and Recent Developments
Lithic Metals and Energy	Nickel	<ul style="list-style-type: none"> • Previously the company was named Zambezi Nickel and changed to Lithic Metals and Energy in 2007. • The company has maintained a core focus on discovery and mining of nickel deposits, primarily in Zambia and other SADC countries. • The company's current operations include two main projects at Mavita and Paulwi, spanning an area of 120km². Prospecting licenses for these projects have been granted, and the company holds 100% interest via its wholly owned Zambia-based subsidiary, Mwembeshi Resources Nickel • For the 12 months ending March 31 2008, the company reported an operating loss of 836695 pounds
Metorex	Antimony, cobalt, copper, gold, fluorspar	<ul style="list-style-type: none"> • South Africa-based Metorex is a multi-commodity mining firm operating principally in southern Africa. Metorex operates through four mining divisions: base metals, gold, industrial minerals and coal. Metorex's current mining portfolio includes antimony, cobalt, copper, gold and fluorspar • The company engages in a variety of mining activities, from prospect selection, ground acquisition, exploration and feasibility studies to operations management, financing and mine closure. • Metorex's main operations in Zambia are located at Chibuluma South in Zambia's Copperbelt. The Chibuluma South mines have total mineral reserves of 6.14mn tons, with copper grades of 3.33%. • For the 12 months ending 30 June 2008, the company recorded gross revenue of ZAR2.44billion. Mining profits were up by 86%, to ZAR921 million
First Quantum Minerals	Copper, gold	<ul style="list-style-type: none"> • Canada-based First Quantum Minerals' core competency lies in copper, gold and related activities including exploration, development and processing. • Its operations in Zambia include the wholly owned Bwana Mkubwa facility and the 80%-owned Kansanshi open pit copper-gold mine. First Quantum Minerals also controls strategic investments in the Nkana underground copper mine and cobalt refinery and the Mufulira underground copper mine, smelter and copper (Mopani Mine) • <i>The company will reduce capital spending, curtail exploration, review its dividend policy and slice into salaries, in a bid to conserve cash amid low copper prices, but still expects to increase its production of copper and gold in 2009.</i> • <i>After reviewing its assets in the weaker market environment, the firm also recorded a \$296-million impairment write down on its listed investments and some inventories, but said that it had not recorded impairment adjustments against any operating or development assets.</i> • <i>The group will reduce capital expenditure in 2009 to \$190-million, from about \$430-million last year, and will focus on completing capital projects which will have a positive effect on its cost profile once in production</i>
Maamba Collieries	Coal	<ul style="list-style-type: none"> • The Maamba Coal Mine is situated in Maamba town 352 km south-west of Lusaka and is the major producer of coal in Zambia

Profiles of selected mining companies (Continued...)

		<ul style="list-style-type: none"> • Years of under-capitalisation have led to a fall in coal production from 600 000 t/y to between 60 000 t/y and 120 000 t/y. • In February 2009, Singapore's Nava Bharat has been named the strategic equity partner in Maamba mine, after the ZCCM put out a tender in the local and international markets looking for a partner to resuscitate operations at the mine • Nava Bharat will be required to construct a 350-MW thermal power station at the colliery to supply power to the country's vast copper and cobalt mines to alleviate the energy crisis in the country.
Chambishi Metals	Cobalt	<ul style="list-style-type: none"> • Currently the largest producer of cobalt in Zambia, with operations located in the Copperbelt region • <i>Chambishi Metals announced in February 2009 that it is in negotiations with potential suppliers to source cobalt concentrates as it seeks to restart its roaster at the plant. But the company has no plans to restart its smelter given continued high power prices and lower metals prices.</i>
Albidon	Nickel	<ul style="list-style-type: none"> • Started production in 2008 and expects to produce 10 500 t/y by 2009, initially at Munali Nickel Mine. Munali Mine is located at Munali, approximately 60 km south of Lusaka. Munali is Zambia's first ever nickel mine. • The mine is expected to have an output of over 900 000 tons of nickel which is expected to be mined over a period of 10 years • <i>In December 2008, Albidon announced that it was considering reducing its employee numbers, as well as closing its Cape Town exploration office and its Lusaka corporate office, in order to strengthen its balance sheet. The group also suspended exploration activities, other than those related to near-term production</i> • <i>The company announced in March 2009 that it had suspended operations at its Munali nickel project, with immediate effect, owing to depressed nickel prices.</i>

Sentences in italics represent the direct impact the global financial crisis has had on the company

Government role the in mining sector

• Mines and Minerals Act

Mining operations in Zambia are regulated by the Mines and Minerals Act (No. 31) of 1995. The objectives of the act are to outline licensing procedures, to place minimum reasonable constraints on prospecting and mining activities, and to create a favourable investment environment, whilst allowing for international arbitration to be written into development agreements, should this be deemed necessary. The government encourages private development and diversification of the mining sector and promotes small-scale mining.

• Mining taxes

In April 2008, Zambia introduced a variable wind-fall tax, levied at 25percent when copper prices are between US\$2.50 and US\$3.00 per pound, 50%

when copper prices are between US\$3.00 and US\$3.50 per pound, and 75percent-% when copper prices are above US\$3.50 per pound. At the same time, corporate tax was raised from 25percent to 30percent and the mineral royalty tax was increased from 0.6% to 3%. One of the aims of the new legislation was also to boost revenue from secondary metals produced at the country's copper mines, as revenue from gold, silver, and lead had tended to be low. The proposed legislation also wanted to introduce a 15percent tax on copper concentrate exports, designed to encourage copper smelting in-country. Under the new regime the average effective mining tax rate would increase by over 15 percentage points to 47percent.

The government has subsequently stated that it is willing to renegotiate the mining taxes in light of

complaints from foreign miners operating within the country. This follows media reports that number of foreign mining firms have suspended projects, citing uncertainty and difficulties in raising investment capital.

- **Uranium mining**

In October 2008, Zambia enacted a new law on the mining, storage and export of uranium, which will prevent the use of the material in making nuclear weapons or devices. The law covers the prospecting, mining and milling of uranium and other radioactive mineral ores, and grants all powers to the mines minister to issue licences for mining and export of uranium. The law also makes it mandatory for mining companies and exporters of uranium to provide documentation on the source of any uranium concentrate or radioactive materials and also to prove the authenticity of importers under IAEA guidelines. Foreign firms seeking to export uranium will have to apply for export licences from the Radiation Protection Authority (part of the Ministry of Health) to ensure their operations do not pose environmental or health dangers. Mining firms will also be required to initiate radiation protection management plans, waste management plans and quantitative radiological hazard and safety assessment plans before they can obtain a mining licence, according to the law. This new law is clearly a boon for the fledgling uranium sector in Zambia, setting the legal framework for uranium mining in the country.

- **Recent initiatives⁵⁷**

Given the importance of the mining sector to Zambia's economic progress, the 2009 budget contained a number of measures designed to stabilise the sector:

- the most notable decision was to scrap the 25percent windfall tax, a measure that had only been in place for one year and had attracted considerable opposition from the mining companies.
- the variable profit tax will be maintained, which the government hopes will still capture any windfall gains that may arise in the sector;
- the government will now allow hedging income to be a part of mining income for tax purposes;
- the capital allowance will be increased to 100percent as an investment incentive;

- customs duty on heavy fuel oil will be reduced from 30percent to 15percent, and the customs duty on copper powder, copper flakes and copper blisters will be removed;
- copper and cobalt concentrates will be included in the import deferment scheme for value-added tax (VAT) purposes.

These measures are designed to reduce the operating costs of mining companies, but they entail a revenue loss which the government projects at ZK19.3bn (US\$3.6m). While the measures will be welcomed by the beleaguered copper sector, the continued fall in prices is (at best) still likely to lead to stagnation in the sector during 2009, but possibly even to a contraction, as mining closures and suspension outweigh new capacity coming on-stream.

Furthermore, the issue of diversification away from the economy's dependence on copper mining was a central tenet of the budget speech. However, year after year pledges to move away from the country's dependence on mining by promoting agriculture and tourism are included in the budget, to little real effect. This has been the case especially in recent years, during which copper prices surged. However, with commodity prices now crashing, the onus is on the Zambian government to make some real progress with its diversification efforts. To this end, the 2009 budget contains possibly the most ambitious measures to jump-start the agricultural sector since independence in 1967

Impact of the Global Financial Crisis on the Zambian Economy and its Mining Sector

General

The copper sector has been hit hard by the global economic downturn. Some companies are already halting production at mines rendered uneconomical by the fall in prices, while others are abandoning or suspending investment in additional capacity. Largely as a result of the economic problems faced by the mining sector several workers lost their jobs. Bwana Mkubwa Mining Company Ltd in Ndola on the Copperbelt announced that it had retrenched 286 workers. Chambeshi metals sent 26 workers on forced leave and Kantashi in Solwezi, North-Western Province retrenched 50 workers.

This downturn in the market was evident by the fact that Zambia's sole power distributor to the

copper mines cut supply by 15 percent to match lower demand from mines as metal prices fell.⁵⁸

Against this, some new production capacity is expected to come on-stream during the forecast period, as much of the rehabilitation that began in recent years is nearing completion, although some of this new capacity may not be used while prices remain low.

In line with this relative stagnation, growth in Zambia's large services sector will slow, as a large proportion of it is geared towards the mining sector. The slowdown in services will also lead to a contraction in the tourism and retail trade sectors, as reduced confidence results in a fall in public consumption.

Anticipated Short, Medium and Long Term Impacts of the Crisis on Zambia

Using a high-level model developed by the team, Table 27 presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

The main points that emerged from the model are:

- The mining sector made about a 9 percent contribution towards Zambian output. Metal mining dominates the mining sector (99 percent of sector GDP) with all mining sectors exposed to the global financial crisis. Copper made the largest contribution towards output (80%) followed by zinc and cobalt ores (19 percent). About 84 percent of mining output is exported.
- Mainly due to the strong decline predicted in copper prices up until 2015, the Zambian mining sector is expected to decline by 32 percent in terms of output and 38 percent in terms of employment in 2009. The decline will continue through to 2010 with low growth predicted to occur over the medium and long term.
- Government revenue is expected to decrease by 22 percent over the short term. About 5 percent of the population is expected to be affected by the decline in the mining sector over the short term (either as mining workers, workers in adjacent industries, or dependent family members) due to the general contraction of the economy associated with reduced spending.

Table 28: Forecasted impact of the global financial crisis on the Zambian economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO	current	short term		medium term	long term
VARIABLE	2008	2009	2010	2015	2020
Mining GDP (1994 prices) Km	316 663	216 200	208 783	215 524	248 991
Mining employment	64 000	39 889	38 109	39 727	47 759
Mining GDP (% real change)		-31.7	-3.4	3.2	15.5
Mining employment (% change)		-37.7	-4.5	4.2	20.2
Changes in mining output due to Global financial crisis (Km) 1994 prices		(100 463)	(7 417)	6 740	33 467
Changes in mining employment due to Global financial crisis		(24 111)	(1 780)	1 618	8 032
Expected indirect impact on GDP(1) Km		(98 453)	(7 269)	6 606	32 798
Expected indirect impact on employment (1)		(49 227)	(3 634)	3 303	16 399
Total GDP change (Km) 1994 prices		(198 916)	(14 686)	13 346	66 265
Total employment change (average Zambia economy)		(73 338)	(5 414)	4 920	24 431
Change as % of GDP		-5.0%	-0.4%	0.2%	0.9%
Change as % of formal employment		-4.5%	-0.3%	0.2%	0.7%
Number of dependents : formal employed		6.9	6.1	4.1	3.0
Number dependents affected by changes in employment		509 446	32 839	20 295	74 286
Total number people affected by changes in mining output (employed + dependents)		582 783	38 254	25 216	98 717
Population m		12.9	12.6	13.8	15.2
Total number affected above as % of population		4.5%	0.3%	0.2%	0.7%
Change in social corporate investment spending (Km) 1994 prices		(402)	(30)	27	134
(A) change in tax income (K m) 1994 prices		(33 816)	(2 497)	2 269	11 265
(B) change in royalties (K m) 1994 prices		(3 014)	(223)	202	1 004
% of (A) and (B) effect on total tax income		-5.5%	-0.4%	0.3%	1.0%

(1) due to industry linkages and secondary spending effects

BOX 9: EXAMPLES OF MINING PROJECTS THAT WILL CONTINUE IN ZAMBIA DESPITE THE DOWNTURN IN THE MARKET

According to a recent article published in the Wall Street Journal (November 2008), Zambia remains on course to double its copper output in the medium-term despite the turmoil in the mining markets, because most investments in the sector were undertaken before the global financial crisis. Mining projects that will continue include:

Lumwana Copper Mine

Owned by Equinox Minerals, this US\$762 million project is ramping up pace, and the company is on the lookout to buy copper properties made cheap by the global economic downturn. Lumwana also produces uranium ore, which the company is currently stockpiling until it can build a processing plant, which has been delayed due to financing difficulties and low uranium prices.

Konkola Copper Mines (KCM)

Owned by Vedanta resources, this US\$500 million deep mine and expansion project will forge ahead despite the recession and the slump in copper prices. Furthermore, KCM is building a 300 000 t/y smelter at Nchanga Mine. The smelter and new concentrator are designed to ramp up KCM's production of finished copper to 300 000 t/y by 2010.

Zhonghui Mining: This Chinese company was recently granted an exploration license by the Zambian government. Zhonghui has announced that it intends to invest US\$ 2 billion in new mines, and wants to open new copper mines in Luapula and North Western provinces, as well as a hydropower station and water supply scheme.

Zimbabwe

Summary Table

Current contribution of mining sector to GDP	Year	Mining industry % GDP	Mining industry value (US\$bn)
	2005	4.5	.16
	2006	4.5	.15
	2007	4.5	.14
	2008	4.5	.13
Total number of people nationally employed by this sector (2008)	36 000 (5 % of total employment)		
National Employment dependency ratio	17.8		
Main types of mining reserves	Gold Platinum Chrome ore Iron ore Diamonds Coal Other: asbestos, kyanite, corundum, magnesite and phosphate		
Total mining exports	30% of mining output exported		
Current account balance	US\$500 million deficit		
Main export markets	South Africa DRC Japan Botswana		
Major mining companies operating in the country	Zimbabwe Platinum Mines African Consolidated Resources Hwange Colliery Co Caledonia Mining Corporation Rio Tinto Mimosa Central African Gold Zimasco		
Mining royalties as % of total revenue	2.5%		
Community Social Investment as % of total revenue (selected listed companies)	0.1%		

Summary Table (Continued...)

Examples of companies that have suspended/ closed down their operations or might do so in the near future	<ul style="list-style-type: none"> • Zimbabwe Platinum Mines (temporary closure end 2008) • Caledonia Mining Corporation (temporary suspension from October 2008) • Buchwa Iron Ore mine (closed down) • Central African Mining (ceased all operations from December 2008) 												
What recent / new government legislation affects the operations of the mines?	<ul style="list-style-type: none"> • Indigenisation and Economic Empowerment Bill (2007): Every foreign company must have at least 51% of their shares owned by black Zimbabweans • Proposed Central Bank reforms to mining sector (2009) 												
Total number of people nationally employed by this sector	Average of 55,000 per annum												
Has the government put measures (legislative, financial etc.) in place to protect the mining companies and its employees?	Yes – Central Bank proposed (controversial) sweeping reforms to mining sector in February 2009 (yet to be implemented)												
Has there been any recorded political or socioeconomic unrest as a direct result of the downturn in the mining sector?	No – but media is restricted and government rarely permits organised labour to flourish and bans most union meetings												
Impediments to mining industry (in addition to the global financial crisis)	Unstable economic and political conditions Smuggling of minerals Electricity supply and availability Skills exodus State of current infrastructure and decline in overall sector performance External funding required												
Other socioeconomic indicators	<table border="0" style="width: 100%;"> <tr> <td style="width: 70%;">Unemployment (% of labour force)</td> <td style="text-align: right;">82%</td> </tr> <tr> <td>Poverty (2003) (% of population below national poverty line)</td> <td style="text-align: right;">56%</td> </tr> <tr> <td>Food security: per capita food production (2004)</td> <td style="text-align: right;">84</td> </tr> <tr> <td>Gini coefficient (2003)</td> <td style="text-align: right;">0.57</td> </tr> <tr> <td>Political stability (2006)</td> <td style="text-align: right;">11.5</td> </tr> <tr> <td>HIV / AIDS prevalence rate (% of population)(2008)</td> <td style="text-align: right;">15.3%</td> </tr> </table>	Unemployment (% of labour force)	82%	Poverty (2003) (% of population below national poverty line)	56%	Food security: per capita food production (2004)	84	Gini coefficient (2003)	0.57	Political stability (2006)	11.5	HIV / AIDS prevalence rate (% of population)(2008)	15.3%
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HIV / AIDS prevalence rate (% of population)(2008)	15.3%												

Source: BMI (2008)

The State of Zimbabwe's Economy

Due to years of political mismanagement, current economic and business conditions in Zimbabwe remain dire, with the real economy at a standstill. The official inflation rate is at 213000000 percent, but in reality it is probably in the billions.⁵⁹ The Reserve Bank of Zimbabwe is technically insolvent with no capital or reserves. The payments system has also effectively collapsed, and enterprises remain subject to official interference and extortion. Furthermore, the humanitarian situation is grave and deteriorating and an estimated 80percent of Zimbabweans are unemployed and living in penury. These problems are exacerbated

by the political violence and corruption that continues unabated.

It should be noted from the outset, that it is difficult to isolate the effects of the global financial crisis on the mining sector in Zimbabwe, from the harsh and deteriorating economic and socio-political realities that were already prevalent in the country before the crisis fully emerged. Given the restriction of the press within the country, and the fact that no comprehensive diagnostic of the economy has taken place since the rupture of relations with the IMF in 1999; access to reliable public information has proven very difficult. Therefore,

this section will provide an overview and outlook for the mining industry in Zimbabwe, and where possible, the impacts of the global financial crisis will be pieced together, in an attempt to provide the reader with an understanding of the additional challenges facing this already troubled industry.

Overview of the Mining Sector⁶⁰

The Republic of Zimbabwe is endowed with mineral, agricultural and other resources. Although the agricultural and services sectors are the strongest, the mining and manufacturing sectors still play an important role in the country's economy. The mining industry contributed 4.6 percent to gross domestic product and more than 40 percent of export receipts in 2007. The mining sector is the second largest employer after agriculture and currently formally employs on average 55 000 people per annum. The government also acknowledges the importance of the minerals sector to the socio-economic development of the country.

Zimbabwe has over 40 different mineral resources. The major minerals extracted include gold, nickel, coal, chromium, iron ore, platinum group metals, diamonds, granite and precious stones (gemstones), asbestos and dimension stone (black granite). As far as the earnings contribution of mineral resources are concerned, five mineral products (gold, platinum, nickel, asbestos and copper) have consistently accounted for over 85 percent of the value of Zimbabwe's mineral production in recent years.

• Gold

In the past, Zimbabwe was the world's third-largest gold producer, after South Africa and Ghana, but is now ranked tenth of Africa's top gold producers. The country has 21 primary gold producers, 254 small-scale miners and 81 custom millers.⁶¹ Gold accounts for about 50 percent of the total mineral production in Zimbabwe. In recent years, lax regulations, failure to monitor mining activities, and illegal gold mining and smuggling have sharply cut output and according to the Zimbabwe Chamber of Mines, the country produced 7.5 tons of gold in 2007, down from 29 tons in 1999. In order to reverse the unprecedented decline in gold production, the central bank will now allow miners to retain 92.5 percent of their gold earnings, up from the previous 40 percent, with the remainder being sold to the central

bank at a market determined exchange rate. However, the central bank which has been the sole marketer of the metal, owes the gold miners millions of dollars which has disrupted (and in some cases suspended) the operations of these mines.⁶²

• Platinum Group Metals

Zimbabwe has the world's second-largest reserves of platinum after South Africa. The country contains a resource of over 4500 million tons of PGM reserves. Platinum group metals have witnessed a sharp increase in output after recent developments of the Mimosa and the Ngezi platinum mines in the south and west, respectively. There have been significant increases in operating costs for the industry, given the fall in the platinum price, as well as the higher production and sales volumes. This increase has also been coupled with rising fuel prices, higher electricity tariffs and adjustments to employee pay in order to retain skills. This combination of factors has resulted in huge losses for many of the platinum mines operating in the country.⁶³

• Chrome Ore

The region is endowed with world-class chrome ore reserves and is the second largest chromium reserves in the world behind South Africa. These are located on a major geological feature known as the Great Dyke. Each year, Zimbabwe produces close to 700 000 tons of chrome ore all of which is processed locally into high-carbon ferrochrome and ferrosilicon chrome, meant mainly for export.

• Iron Ore

Zimbabwe has large iron ore resources grading 40 percent iron ore and above. The state-owned Zimbabwe Iron and Steel Company (ZISCO) controls iron ore mining and beneficiation in Zimbabwe. ZISCO is the only Iron and Steel production facility in Zimbabwe. Iron ore production has more than halved since 2000, with decreased coal and electricity supply as well as poor transport of raw minerals and finished product cited as the major causes of the decline in production.

• Diamonds

Zimbabwe is rich in Kimberlite diamonds and contains reserves in excess of 16.5 million tons. Although significant kimberlite diamond deposits have been located in Zimbabwe, many of these

reserves remain undeveloped. However, new developments undertaken by renowned mining companies in the area could see the country producing large quantities of diamonds.

The Reserve Bank of Zimbabwe stated in 2008 that the country is losing nearly US\$1.2bn worth of diamonds each month to some 500 syndicates operating in the east of the country. RBZ governor Gideon Gono said that dealers and smugglers from all over central and southern Africa are operating in the diamond fields of Manicaland. As such, it is hard to see this illegal diamond mining being curtailed any time soon.

- **Coal**

Coal has been the dominant energy mineral for Zimbabwe. The nation possesses vast reserves of coal (estimated at approximately 5.5 billion tons), particularly in its north-west and south-east regions. At the current low production levels, it is estimated to last as long as 300 years. Several exploration companies have reported viable resources awaiting further development and exploration.

- **Precious Stones**

Compared to other mineral resources in Zimbabwe, precious stones reserves are present in smaller quantities. Most of these reserves are being mined by small scale miners and illegal miners. Illegal mining has increased following the collapse of commercial agriculture and the high unemployment rate in the country.

- **Granite**

Zimbabwe mainly produces a type of granite known as dolerite, commercially known as Zimbabwe black granite. The unique Zimbabwe black granite is a dimension stone (a rock or stone that has been fabricated to specific sizes or shapes) with a huge demand throughout the world. There is also a strong need to focus on processing the stone domestically to add value before export. According to Organisation of International Trade in Zimbabwe (ZimTrade), the resource is considerable and there is potential for further investment by both local and foreign companies

- **Other minerals**

Other minerals exploited in Zimbabwe include asbestos, kyanite, corundum, magnesite and phosphate. The production figures for these remain small, but there is reason to believe that such resources offer potential for local and foreign investors. As one of the few producers of ruthenium in the world, Zimbabwe stands to benefit from a recent price rise, following the discovery of the application of the metal in computer disc drives.

Overview of the Major Mining Companies

Zimbabwe's mining industry comprises a diverse range of small- to medium-scale mining operations, with some mines being run by large international mining organizations such as Rio Tinto and Anglo American. The lower commodity prices in previous years have had a negative impact on the smaller operations and as a result a number of them have closed down. Moreover, production of

Table 29: Zimbabwe's prominent mining companies

Mining Company	Commodity
Rio Tinto Zimbabwe (RioZim)	Coal, Gold, Diamonds
Africa Consolidated Resources	Gold, PGM, Nickel, Diamond
Zimbabwe Platinum Mines (Zimplats)	Platinum
Anglo Platinum	Platinum
Mimosa Platinum	Platinum
Hwange Colliery Co Ltd (HCC)	Coal
Bindura Nickel Corporation	Nickel
Murowa Diamonds	Diamonds
Caledonia Mining Corporation (CMC)	Gold
Central African Gold	Gold
Metallon Gold Zimbabwe	Gold
Zimasco Consolidated	Chromium
Zimbabwe Iron and Steel Company (Ziscosteel)	Iron ore

major minerals such as gold, iron ore and coal has dropped severely since 2000 and many mine operators are finding it difficult to cope with the economic situation in the country despite high commodity prices on the global markets.

Brief profiles of selected companies are provided in Table 30 :

Table 30: Profiles of selected mining companies

Mining Company	Commodity	Description and Recent Developments
Rio Tinto	Diamonds	<ul style="list-style-type: none"> Major diamond player in Zimbabwe that owns the only operating diamond mine in the country at Murowa The Murowa facility currently produces 300,000 carats per year Rio Tinto has stated that it will not invest any further money into the Murowa mine until there is an improvement in the political situation. However, the company will continue to maintain a presence despite international pressure to withdraw. Production had fallen by 40% to 145000 carats in 2007 because of: frequent power cuts, shortage of skilled workers, machine breakdowns falling grades and the need to dig deeper.
Zimplats	Platinum	<ul style="list-style-type: none"> Operates two mines (at Ngezi town) in the Hartley geological complex in the Dyke South-West of Harare Holds two-thirds of the Hartley complex on the Dyke 86.9% owned by South African based Impala Platinum but has a residual Australian listing after being spun out by Delta Gold Company hoping to be exempted from Economic Empowerment Act, through the release of 35% of its resource base, as well as obtaining credits for its infrastructure and social spend Zimplats and the Mimosa operations employ 5000 people in Zimbabwe <i>In the third quarter of 2008, the company reported revenue of US\$15.36million, down 83% quarter on quarter as a result of lower sales volume and metal prices</i> <i>Open cast operations were closed toward the end of 2008 due to cost reasons. Despite this, Zimplats has managed to mill 1.1 million tons in the past 6 months</i>
Mimosa	Platinum	<ul style="list-style-type: none"> Aquarius Platinum has a 50% share in Mimosa mine, and the remaining 50% is owned by Impala Platinum (Implats) Aquarius Platinum's South African mines are in serious financial trouble, largely as a result of the falling platinum prices Located on the Wedza Geological Complex in the southern part of the Great Dyke Mimosa is currently one of the most efficient PGM producers in the world
African Consolidated Resources	Gold, PGM, Nickel, Diamonds	<ul style="list-style-type: none"> Established in 2005 to invest in mineral extraction, and reportedly found diamonds in 2006. The company plans to conduct further research, including geochemistry, geophysics, bulk sampling, drilling and trial mining Ongoing projects include: Pickstone Peerless Project, Giant Mine and Gadzema Schist, One Step, Snakes Head, Perseverance Nickel Mine, Chewore project, and other Greenstone belt targets <i>In the financial year ending in 2008 the company reported a loss</i>

Profiles of selected mining companies (Continued...)

Hwange Colliery Company (HCC)	Coal	<ul style="list-style-type: none"> • The government has a 40% share in HCC and 70% of its coal output goes to the Hwange power station for the generation of electricity • Hwange is the only coal producer in Zimbabwe, and is involved in the mining and processing of coal, and the production of coke and related by-products. • The mine has a lifespan of 15 years and a capacity to produce 150000 tpa of coal. • Chaba Mine is wholly owned by HCC and is situated in the remote western tip of the country. • HCC signed an agreement in 2008 to export 10000 tons of coal each month to Zambia's Konkola mines • Zimasco to provide US\$2.5 million to HCC to pay for repairs to its dragline. HCC will repay this money with coal and coke to the value equivalent to the loan
Caledonia Mining Corporation (CMC)	Gold	<ul style="list-style-type: none"> • Canada-based entity engaged in the acquisition, exploration and development of mineral properties for the exploitation of base and precious metals • Blanket Mine is a CMC wholly-owned mine located in the south-western part of Zimbabwe • To date, the mine has produced in excess of 1 million oz. At present, Blanket Mine mills 600 tons per day of underground ore. • Temporarily suspended gold production at its Blanket Mine in the fourth Quarter of 2008, as a result of the continuing failure of the Reserve Bank of Zimbabwe to make payment on gold sales • In the first quarter 2008, Caledonia reported a revenue of US\$2.5 million and a net income of US\$ 721,000.
Central African Gold (CAG)	Gold	<ul style="list-style-type: none"> • CAG is a London-based company that is listed on the London Stock Exchange's Alternative Investment Market (AIM) • Central African Gold acquired an 84.7% interest in Falcon Gold Zimbabwe Limited (Falgold) and the entire issued share capital of Olympus Gold Mines Limited (Olympus), two Zimbabwean-based gold mining companies on 1 March 2007. • CAG also operates the Dalny mine, the Rix tailings treatment operation, the Golden Quarry underground mine, the Camperdown quarry and the Old Nic underground mine, in Zimbabwe • <i>Since December 2008, CAG has ceased all operations in Zimbabwe due to the adverse political and economic climate in the country (but will maintain assets pending resolution to these problems)</i>
Zimasco	Chrome Ore	<ul style="list-style-type: none"> • Zimbabwe's sole producer of ferrochrome is Zimbabwe Mining and Smelting Company (Zimasco) and was bought by China's Sinosteel in December 2007. • The company has ambitious expansion plans over the coming years, hoping to increase production to 235000 tons per year by end-2009. To achieve this, Zimasco has been active in providing loans to coal and power companies in recent months, which will then be repaid by raw materials.

Sentences in italics represent the direct impact the global financial crisis has had on the company

Government's Role in the Mining Sector⁶⁴

Zimbabwe's general mining policy is to undertake sustainable development of the nation's mineral resources and create employment opportunities. There is no prioritisation of minerals for exploration and development. The Ministry of Mines and the Zimbabwean Chamber of Mines are the principal regulatory agencies for the industry. Environmental issues in mineral exploitation are given due attention at the project inception and developmental stages, and are regulated by the Environmental Management Agency.

The principal legislation governing the mining industry of Zimbabwe is the Mines and Minerals Act. This has been amended several times since it was first passed in 1961. All mineral rights are vested in the president and companies or individuals can acquire rights to work mineral deposits through an application to the Mining Commissioners. Mining activity is open to both local and foreign individuals and companies. Currently, government participation in mining is through the Zimbabwe Mining Development Corporation (ZMDC) and the Minerals Marketing Corporation of Zimbabwe (MMCZ). The ZMDC was formed in 1982 for the government to participate in mining activity and to save companies that faced closure. It is active in exploration, mining and assisting co-operatives and small-scale miners. The MMCZ was formed in 1992 and is responsible for marketing the nation's minerals and metal products, except for gold and silver that are sold through the RBZ.

In September 2007, Zimbabwe's parliament approved a bill that permits Zimbabwean citizens to have a majority stake in foreign-owned companies. The empowerment legislation is aimed at encouraging indigenous participation in the economy, including mining, and will give a 51% stake to nationals. In line with empowerment legislation, the Ministry of Mines and Mining Development planned to pass new mining legislation on foreign ownership by March 2008. This move was regarded as a serious setback for the already ailing economy as potential foreign investment will be discouraged. Another concern for miners in Zimbabwe relates to the anticipated changes in the existing mining contracts with the government. Further, the ministry announced plans to revive the gold pricing committee, and

also recommended that a certain quota of diamonds mined in the country be reserved for the domestic diamond industry.

In February 2009, Zimbabwe's central bank proposed sweeping reforms to the country's mining sector which will leave the ZMDC as the sole "explorer and discoverer" of minerals. The proposals also include strict mentoring of the production, refining and valuing of precious metals on site and a ban on the export of unprocessed minerals such as gold, diamonds, chrome and PGMs. The central bank further proposed the following strategies for the different minerals (Nkala, 2009):

- steel: promotion of the manufacture and local beneficiation of stainless steel products through discouraging the importation of stainless steel, specialist steels and rolled steel plates;
- coal: overhaul the shareholding structure of HCC with a view to attracting new investors in order to revive production;
- chrome: promote small-scale chrome miners to set up more smelters, while imposing a total ban on chrome "without value addition."

The central bank is also proposing a new law whereby companies would forfeit their rights to mineral deposits if they fail to exploit the deposits. Furthermore, the central bank also cancelled all special dispensations and guarantees signed by the government with platinum producers, allowing them to keep their earnings offshore, according to reports from Voice of America, (an international broadcasting service funded by the US government). If this is followed through it will create considerable problems for South Africa's Impala Platinum (Implats), which is the principal owner of Zimplats, the country's largest platinum miner.⁶⁵

Economists and analysts have criticised the government for pinning their hopes on the revival of the mining sector, given the current depression (and in some cases, stagnation) in the commodities market. Furthermore, the proposed policies seem to be contradictory, promoting opposing state intervention and market force initiatives.

In addition to legislative concerns, government intervention in the economy and in state-run industries (such as fuel importation, electricity

BOX 10: EXAMPLES OF UPCOMING MINING PROJECTS IN ZIMBABWE

Iron

Despite the ongoing political turmoil in the country, the government still appears to be attempting to sell a stake in state-controlled Zisco. At present, it is unclear how much of its 88% stake in the firm the government intends to sell. In addition, the move to divest Zisco seems strange, given that the government had previously told steelmaker ArcelorMittal in June 2008 that the company was not for sale. Clearly, it seems unlikely that a buyer can emerge until the political situation in the country calms down. In previous years, Zisco was a major player in the African steel industry. However, the recent years of civil unrest and a lack of investment have taken a toll on the steel producer, with The Herald estimating that the company required investment of between US\$100-150mn

Nickel

Zimbabwe's largest nickel producer is Bindura Nickel Corporation (BNC), majority-owned by Mwana Africa. The company has started to develop its Hunter's Road project, following the successful placement of US\$25mn in shares by Mwana Africa during June 2008. Hunter's Road was accorded National Project Status by the government in June 2008, which qualifies the project for fiscal incentives. The planned development is expected to extend the life of the mine by around 20 years. At the same time, Mwana plans to refurbish processing plant equipment from the closedown Epoch and Madziwa mines for use on the project. Total production from the project has been estimated at some 10,000 tonnes of contained nickel per annum.

BNC also recently announced its full-year results, with higher costs and lower production levels seeing nickel output fall by 24% over the year ended March 31 2008. Nickel in concentrate output fell by 21%, to 5,080 tonnes.

By November 2008, BNC's financial position had worsened significantly. The company issued an advisory urging investors to exercise caution in dealing with its shares, blaming falling nickel prices and unfavourable exchange rates for share price weakness. This could well hold implications for the future of the Hunter's Road project.

Platinum

London listed mining company, Camec is going ahead with a US\$214 million platinum project on the southern part of Zimbabwe's Great Dyke, with commissioning expected during the last quarter of this year. Camec holds a 60% stake in Todal Mining (the other 40% is owned by ZMDC), the key assets of which are the Bokai and Kironde claims, covering approximately 100 km². The pledge for the power required to enable mine commissioning has been secured, and water is available in the vicinity of the claims. The environmental impact assessments will be submitted at the end of February 2009.

Sources: Mining Weekly (2009) and BMI (2008)

generation, import and distribution, and railway transport) has resulted in a number of mine closures and suspended projects, undermining the ability of the mining industry to continue to generate export earnings. Moreover, currency regulations make it difficult for Zimbabwean mining companies to benefit from the worldwide increase in commodity prices.

Impact of the Global Financial Crisis on Zimbabwean Economy and its Mining Sector

General

The short-term outlook for the mining industry in Zimbabwe is not favourable. Zimbabwe's rampant hyperinflation is continuing upwards, and escalating local costs are expected to continue to

harm mining activity. Side-effects of the hyperinflation, which include reduced equipment maintenance and deferred development exploration, will effectively shorten the potential operating life of many mining operations. Furthermore, analysts have warned that mining will be one of the biggest losers if the political climate remains as strained as it is currently⁶⁶

The financing crisis in Zimbabwe means that there will simply not be enough foreign exchange available to keep imports at their current levels. Furthermore, the income account is also set to remain in deficit, even though the repatriation of profits and debt-service payments will be limited. Only the current transfers account will be in surplus: private transfers are expected to hold

up as the four million Zimbabweans living abroad continue to send money home to support their families. However, even this source of financing is likely to suffer as the global slowdown causes Zimbabweans living abroad to lose their jobs.⁶⁷

However, the nation has abundant mineral resources. On expectations that the economic and political climate will eventually improve, the Zimbabwean mining industry remains attractive over the longer term, especially for small- and medium-scale mining players.⁶⁸

Anticipated Short, Medium and Long Term Impacts of the Crisis on Zimbabwe

Using a high-level model developed by the team, Table 31 presents the analysis of the most probable scenario for the impact of the global financial crisis on the mining sector and economy as a whole in the short-, medium, and long-term. The assumptions underpinning the model are detailed in Appendix A.

Given the lack of reliable and recent economic data for Zimbabwe, this model used the latest sta-

tistics available (some old as the 1990s) as well as the projected forecasts of the World Bank and BMI, in order to determine the impact of the global financial crisis on Zimbabwe. The main points that emerged from the model are:

- The mining sector contributed about 5 percent towards total output and employment in Zimbabwe in 2008. Lack of investment, political instability, power supply problems affect all types of mining. The global financial crisis is expected to pose additional challenges to the sector within the next two years.
- Chrome made the largest contribution towards industry output (58 percent), followed by platinum (13 percent) and nickel (11 percent-).
- In 2009 mining output is expected to decrease by 25 percent and employment by 30 percent. Due to the high dependency rates, almost 4% of the population is expected to be influenced by the decline in the mining sector within the next year. Government revenue is furthermore expected to decline by 17 percent.

Table 31: Forecasted impact of the global financial crisis on the Zimbabwean economy and its mining sector (2009 to 2020)

MOST PROBABLE SCENARIO VARIABLE	current	short term		medium term	long term
	2008	2009	2010	2015	2020
Mining GDP ZM\$m (1990 prices)	662	495	471	498	622
Mining employment Numbers	36 000	25 125	23 599	25 340	33 400
Mining GDP (% real change)		-25.3%	-4.7%	2.3%	4.4%
Mining employment (% change)		-30.2%	-6.1%	7.4%	31.8%
Changes in mining output due to Global financial crisis (ZM\$m) 1990 prices		(167)	(23)	27	124
Changes in mining employment due to Global financial crisis		(10 875)	(1 526)	1 741	8 060
Expected indirect impact on GDP(1) ZM\$m		(269)	(38)	43	200
Expected indirect impact on employment (1) Numbers		(16 162)	(2 267)	2 587	11 978
Total GDP change (ZM\$m) 1990 prices		(437)	(61)	70	324
Total employment change Numbers		(27 037)	(3 793)	4 328	20 038
Change as % of GDP		-2.0%	-0.3%	0.2%	0.9%
Change as % of employment		-3.9%	-0.6%	0.5%	1.6%
Number of dependents : working person (average Zim economy)		19	20	15	11
Number dependents affected by changes in employment		516 195	76 879	63 973	229 315
Total Number people affected by changes in mining output (employed + dependents)		543 232	80 672	59 645	209 277
Population		13 606 000	13 772 000	14 841 000	15 730 000
Total Number affected above as % of population		4.0%	0.6%	0.4%	1.5%
Change in social corporate investment spending (ZM\$m) 1990 prices		(0.33)	(0.05)	0.05	0.25
(A) change in tax income (ZM\$m) 1990 prices		(131)	(18)	21	97
(B) change in royalties (ZM\$m) 1990 prices		(8)	(1)	1	6
% of (A) and (B) effect on total tax income		-3.4%	-0.5%	0.2%	0.3%

(1) due to industry linkages and secondary spending effects

MITIGATING AGAINST THE POTENTIAL OUTCOMES OF THE GLOBAL FINANCIAL CRISIS ON THE MINING SECTOR

The purpose of this section is to provide general suggestions and recommendations as to how regional governments could mitigate against the downturn in the mining industry. This section serves to provide a very high-level overview of some of the findings that emerged during the course of this study, as well as to explore, where possible, what other countries are doing to mitigate the impact of the financial crisis on their mineral industry (most notably Canada, Australia and Chile). These recommendations are by no means exhaustive and merely serve as an indication of some of the viable options that are being considered and/or implemented by nations.

Another observation which cut across our countries is that we have not been able to diversify our economies to ensure that we broaden the tax revenue base and avoid our vulnerability of the international price fluctuations to which our minerals are exposed.

This study has revealed that countries in the region have to deal first and foremost with the immediate problem of mitigating the impact of the financial down turn on governments' financial projections considering most economies in the region are in recession.

The increase in price of commodities as predicted for 2010 will not automatically undo the consequences of the crisis. The boom also might not be of the same nature.

This analysis is intended as a warning about the impending problems for the financing of regional and local projects planned for 2009 and 2010, and also about the need to include the issue of volatility in future planning exercises. This is only a tentative analysis, based in some cases on estimates that must be confirmed by official information. It is also based

on projections that are still the subject of global debate and about which there is no consensus. But, we insist, its main purpose is to stimulate debate on these issues and to galvanize the search for immediate and medium-term solutions.

Short-term responses (2009 to 2010)

- **Engage with mining companies in order to find optimal solutions to minimise the job losses**

Measures could include collaborating with the private companies to train miners to assume others roles within the same company, or be equipped with other skills in order to become employable in different industries. For example, in Australia, some universities have created courses designed specifically for former mining management to acquire different skills that are transferable into other industries.

- **Improve national beneficiation, value addition and downstream processing capabilities**

Promote and develop downstream industries that process the raw mining commodities, improve export quantities of processed minerals and enhance the overall global competitiveness of the region. Countries like Botswana and South Africa have proposed and developed various initiatives of this nature, but political and industry champions will need to drive these initiatives if they are to be implemented successfully.

- **Reduce the impact of the financial crisis on exploration companies**

The Prospectors and Developers Association of Canada have proposed a number of reforms, which include:

- temporarily decrease the Mineral Exploration Tax Credit (MTEC) for exploration financed using flow-through shares;

- making the METC a permanent feature of the federal tax system;
- increasing the investment in geo-mapping infrastructure in order to create jobs and retain expertise;
- improve an exploration company's ability to retain employees by allowing a portion of overhead costs to qualify for renunciation under flow-through share arrangements;

Where applicable, similar measures could be applied as mitigating measures.

- **Create an economic environment that is attractive to investors including mining companies**

Some have argued that the best way to preserve the industry and reduce job losses, the stimulus packages should include, amongst other things, deferring royalties, reducing taxes and providing incentives to all types of mining companies. SARW is against this strategy. Instead we would like to propose that ensuring transparency and accountability in the sector should be the way to go. It will be a mistake for countries like the DR and Zambia which have renegotiated their development agreement to start reviewing them under pressure. The commodity downturn is a temporary temporary situation, but the agreements bind governments and their people for decades. Countries should privilege long term gains. Better to leave a valuable asset in the ground than accept terms that will yield your country little revenue or other benefits over the long term.⁶⁹

We need to emphasise this point. The best way to protect the sector and attract investors is to ensure accountability, transparency and good resource governance in the sector. For two reasons:⁷⁰

- Information will be at a premium in this new market climate. Investors will want to see your books and they will want to know that the numbers can be trusted. They will want to see political stability.
- Financial regulators also will demand more disclosure from governments and companies that want to raise funds in their markets.

The implementation of the EITI is best and simple way to ensure transparency and accountability in the system.

- **Counteract the negative social effects of retrenchment.**
- **Considering the formation of an agency to be jointly managed by business, labour and government to**
invest in the economic development of mining towns, or labour-sending areas affected by retrenchments.

- **Continue investing in power generation, transport networks and telecommunications**
Infrastructure and other public works projects should be made labour intensive in order to promote job creation, increase skills transfer, and enhance national infrastructure, which is a prerequisite for a well-functioning mining industry.

- **Fast-track government mining projects**
In Queensland Australia, the government has fast-tracked a dozen key mining projects in order to retain and create jobs. Furthermore, different departments (including Infrastructure and Planning, Natural Resources and Water, Mines and Energy) are working together to identify areas of regulatory overlap in order to streamline approval processes.

- **Create “opportunity centres” for retrenched mineworkers:**
These centres will be responsible carrying out all training, outplacement, counseling and other social matters. Where appropriate, this function can be outsourced to a specialist service providers.

- **Provide training or create awareness about suitable alternative livelihood and/or self-employment options**
Mines should try to identify where some workers could be transferred within the company. If no internal placements can be made, then training could be provided to retrenched employees to equip them in finding employment in the mining or other sectors or to pursue entrepreneurial initiatives.

- **If possible, increase government social spending**
In order to assist retrenched workers and “fill the gap” left by a potential reduction in social spending by the mines. Measures could include, among others, increasing the eligibility age range for

child-support grants and reducing the pension age for men.

- **Rein in political ambitions to drive the investment agenda**

During the commodity boom, African governments could pick and choose their mining partners from a plethora of candidates from the east and west. However, the overall contraction of investment and commodity prices has changed this and the luxury of choice has dramatically diminished. This will reduce governments' room to manoeuvre and will revive the need to attract foreign direct investment from all parts of the world.

Medium to long term responses (2011 and beyond)

- **Diversify the economy away from its dependence on a narrow and volatile revenue stream**

Many of the economies examined in this paper (most notably Botswana and Angola) are heavily dependant on the mining industry, and have not focused on developing (or sufficiently investing in) other sectors in order to diversify the economy away from mining. The best long-term solution for these countries is economic and labour diversification away from their dependence on minerals and the mining sector into other important sectors such as telecommunications, tourism and hospitality, medical sciences, business development, agriculture etc. This will assist these countries in better mitigating against similar market downturns and volatilities in the future.

- **Invest in agriculture**

The commodity crisis has highlighted the severe under-investment in this sector, and while many countries in the study have attempted to target some national spending in this area, more should be done to stimulate growth and development in the sector. In order to promote food security, reduce dependence on food imports, and prevent food inflation, it is imperative that this industry is developed and effectively managed. Boosting domestic food production will lower the need for costly imports, while increasing exports could provide a lucrative foreign-exchange earner.

- **Promote political stability and sound macroeconomic management**

This will, among other things, reduce exchange rate volatility, reduce inflation, improve the national trade balance, reduce the need for aid, improve employment opportunities, reduce poverty, and improve the overall attractiveness of the country to foreign direct investors. The active creation of an attractive business environment is imperative in order to attract and retain foreign direct investment within the country.

- **Invest in infrastructure development**

Continually invest in and expand on power generation, transport networks and telecommunications infrastructure.

- **Develop and implement environmental management programs:**

This will help to ensure the continued sustainability of current and future mining operations.

- **Introduce or improve national revenue mechanisms:**

This can be obtained through the development of improved fiscal management laws and institutions that smooth national spending and insulate a nation's economy from the negative impacts of volatile revenues. Please see Box 11 below for a case study of how this was effectively implemented in Chile's copper industry. Countries should also consider joining the Extractive Industries Transparency Initiative (EITI).

- **Continue to work with mining companies to reduce the impact of HIV and AIDS on the mining industry:**

Invest in HIV and AIDS awareness and education programmes in order to reduce the impact of the disease and prevent new infections, so as to minimize the loss of skills and employable workforce.

- **Build in our plan volatility projections**

On general observation across the region is that governments assumed that boom levels of demand and pricing were permanent, and stable. The crisis found most governments unprepared and lacking in alternatives in terms of planning and financial management mechanisms to deal with such eventuality.

BOX 11: CHILE, COPPER AND INNOVATION

A revenue management fund can be used for a variety of purposes, from broad expenditure stabilization to targeted competitiveness or diversification initiatives. Chile provides a good example of a relatively successful revenue management programme. Chile, the world's leading copper producer, introduced a stabilisation fund in 1987 to cover budget shortfalls in times of low prices. Each quarter, Codelco, the state-owned copper company, contributes any profits in excess of a pre-defined reference price to the stabilisation fund. The government can then draw on the fund when quarterly copper prices fall more than four cents below the reference price.

In 2006, Chile created a Competitiveness and Innovation Fund, which is supported by copper royalties. The goal of the fund is to promote six strategic interests: entrepreneurial innovation; human capital formation; science and technology promotion, internationalisation of innovative efforts; public awareness on innovation; and innovation in the public interest. The fund focuses on mining regions, in order to develop human capital in those areas and reduce their reliance on mining.

Source: African Analyst (2009)

APPENDIX A: BACKGROUND INFORMATION AND ASSUMPTIONS UNDERLYING ECONOMIC MODEL FORECASTS

Background

For each of the countries, the prominent mining companies were highlighted, and then some of these companies were further profiled. The profiled companies were selected on the following basis:

- companies that have been impacted by the global financial crisis and whose losses/ gains have been covered by the media;
- companies with a relatively higher market share (by total volume produced per commodity);
- companies which have operated in the country for a significant period;
- companies holding major exploration rights; and
- according to the brand eminence of the company in the mining industry as a whole (both locally and internationally).

Furthermore, models have been created for each of the profiled countries, as well as the region, in order to simulate the socio-economic impacts of the global financial crisis.

The Model

- The model's predictions were based on forecasted changes in the respective country's income (prices X quantity) from major mining and, where relevant, energy sub sectors as a result of the global financial crisis.
- The changes in the income streams from the different commodities were weighed according to the relative contribution of the different commodities to the mining output of the respective countries.
- As proxy for changes in commodity prices, the World Bank forecasts of commodity prices from 2009 to 2020 were used.
- The predicted real price changes relevant to the model are given in the table below:

Real prices	2008-2009	2009-2010	2010-2015	2015-2020
FORECAST				
average annual change				
Coal (Australia)	-24.8	-10.5	-5.6	0.8
Crude oil	-27.8	0.0	0.3	0.0
Natural gas (US)	-14.3	0.0	3.1	0.0
Aluminium	-18.6	3.2	2.5	0.4
Copper	-33.5	-5.4	-2.9	0.1
Gold	-14.5	-4.6	-2.1	0.9
Iron ore	-16.5	-13.2	-8.0	0.8
Lead	-35.9	-5.6	-2.1	1.1
Nickel	-39.4	-8.9	4.3	1.1
Silver	-36.9	-3.9	-1.1	1.6
Tin	-28.5	-5.0	-4.9	1.3
Zinc	-33.1	2.0	2.3	0.7

Source: World Bank 2009

- Due to a lack of specific data, the average commodity price index was used as proxy for the change in **platinum** prices while the price changes in **diamond prices** were based on media reports as well as long term movements in the gold price after 2010.
- For changes in quantities, the forecasted changes were based on the IMF's and Econometer's consensus forecasted growth rates of major trading partners.

Output growth of Trading partners	2008-2009	2009-2010	2010-2015	2015-2020
FORECAST average annual change				
EU	0.2	0.2	4.0	2.5
US	1.0	1.0	4.0	2.5
China	7.5	7.5	4.0	2.5
South Africa	1.2	3.6	3.5	3.3

Source: IMF Econometer (2009)

APPENDIX B: INDICES AND THEIR MEANINGS

Index	Explanation
Gini coefficient	The Gini coefficient measures the level of income inequality in a community. Hypothetically, perfect equal communities (everyone earns exactly the same) would have an index of 0 while perfect unequal communities (one person earns all the income) would have a coefficient of 1. In practice the coefficient lies between 0 and 1 with an index closer to 1 signifying a relative more unequal society in terms of income distribution
Food security index	The food security index shows per capita food production. For example, an index figure of 104 indicates that the country's average food production capita was 4% higher than the world average for that year.
Political stability index	This World Bank index is used to measure political stability and the absence of violence/terrorism: the likelihood that the government will be destabilized by unconstitutional or violent means, including terrorism. 100 = perfect stability. 0 = perfect instability
HIV /AIDS prevalence rates	Adults aged 15 to 49 prevalence rate According to UNAIDS: http://www.unaids.org/en/CountryResponses/Countries/default.asp

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