



THE POLICY GAP

**A review of the corporate social
responsibility programmes of the platinum
mining industry in the North West Province**

BENCH MARKS FOUNDATION

CONTENTS

Foreword	3
Introduction	4
Executive Summary	5
Section 1 Ecosystems and resource extraction	10
Section 2 Local economic development and supply chains	20
Section 3 Training and development of local managers and employees	31
Section 4 Wages and salaries	44
Section 5 Employment conditions and human rights	48
Section 6 Gender	52
Section 7 Health and Safety	54
Section 8 Communications and reporting mechanisms	67
Section 9 Conclusion and Way Forward	70
Glossary of terms, abbreviations and acronyms	80
Bibliography	83

Research project supported by: The Greater Rustenburg Community Foundation (GRCF), groundwork in Pietermaritzburg, South Durban Environmental Alliance (SDCEA) and The National Children Rights Committee (NCRC).

Research conducted by David van Wyk, Mudjadi Trading (Pty) Ltd.

© Bench Marks Foundation

Foreword

The discovery of diamonds and then gold in South Africa created the backbone on which the South African economy was built. This led to rapid growth in infrastructure, manufacturing and financial services – built on the backbone of workers from all over Southern Africa and supported by legislation that forcibly removed people from their lands. Legislation such as the hut tax, land tax and labour tax and finally the 1913 Land Act forced people to labour in the mines and changed lives forever.

Much is recorded in history of the negative impacts of mining and how whole communities have been dislocated. Communities that once depended on an agricultural existence soon found themselves in bonded labour, removed from the land, alienated from family and faced with dangerous working conditions.

The words from a song written long ago read: “it is we who built the mines and built the cities and the places where we trade, and now we stand outcast and starving amidst the wonders we have made”, give cause for reflection.

Is today any different given the platinum boom and the race for mining rights? Communities all over the country are crying out against being removed from their lands and from the disastrous negative impacts of mining, including social upheaval, environmental pollution and the continued relocation of people off agricultural land.

The Bench Marks Foundation set out to study the mining companies in Rustenburg against internationally accepted standards of socially responsible business practices. We looked at the mining houses’ standards, the Mining Charter and the mines’ social license to operate. We also looked at how mines invest in communities and if these efforts addressed the communities social and environmental needs. In other words, we wanted to see how communities benefit from mining.

What we see is that as much as things have changed they still remain the same. Will the platinum boom be any different from the gold boom of the late 19th and 20th centuries? Will it benefit local communities or will it only benefit a few at the expense of many?

We start from the assumption that management and investors will not voluntarily act in the interest of society and the environment and believe that this is a correct assumption. We believe that the starting point of economic life begins with communities. We want to know how those directly impacted upon benefit from mining.

From an ethical perspective we promote positive corporate responsibility that takes into account the stewardship of the earth, the protection of the earth for future generations, the sharing of wealth and the principle that ‘the polluter pays all’. Ethical business is a simple concept that says: “please treat me the way you would like to be treated”. As individuals we won’t throw our rubbish into our neighbour’s garden, or not share out the food at mealtime, or benefit at the expense of one another. Corporate citizenship demands the same integrity.

This report challenges the common notion of what constitutes corporate responsibility and arrives at a new way of looking at how responsible business practices can contribute to much needed development.

The Rt. Rev. Dr. Jo Seoka
Chairperson Bench Marks Foundation of Southern Africa for Corporate Social Responsibility and
Anglican Bishop Pretoria.

Introduction

We set out to do a study on the mining houses in Rustenburg to look at how they carried out their corporate social responsibility duties - how they complied with the legislative overview of black economic empowerment, their social license obligations, and how they measured up to the MMSD (Mining, Minerals and Sustainable Development) framework.

More particularly, we measured the Rustenburg mining houses against international standards using our measuring tool called "*Principles for Global Corporate Responsibility, Bench Marks for Measuring Business Performance*" (the Bench Marks).

We are aware of the numerous awards given for corporate social responsibility often with mining leading the way. Thus we wanted to see how the mining houses interacted with their own employees, surrounding communities and how they addressed their environmental impacts. In particular, we were interested in their investment in communities and if this was done in a sustainable manner.

As a faith community we are concerned about the moral and ethical considerations that business needs to take into account. Given our young democracy, the social challenges of dealing with high unemployment and growing poverty levels and economic exclusion are major areas where business can play a role. Central to our research is how mines can address their negative social, economic and environmental impacts in a sustainable job-creating and empowerment manner.

Our report shows that much needs to be done in terms of the environment, housing, health, labour, waste management, energy and water management, clean air and geological issues. The report demonstrates huge negative impacts on surrounding communities and goes contrary to the popular myth that the benefits from mining trickle down to local communities.

The report points to negative impacts on communities such as poor air quality, respiratory diseases, unacceptable heavy metals in water, pollution of underground water tables and changing water direction. Of concern is the HIV and AIDS pandemic linked to the proliferation of informal communities where sex work is rife and where mines do little to address these impacts. Also of concern are the housing and labour policies, the living out allowance and the ongoing discrimination of women in the employment policies of the mines.

What is striking is what the mines do not report on – the omissions in reporting on geological issues, hydrological issues, atmospheric issues and seismic events.

While the report demonstrates that the mining houses comply with a legislative overview there exists a gap between policy and practice. Through this study we propose a new way of looking at corporate social responsibility – one that is developmental in nature, inclusive and that empowers local communities.

Each section of the research report lists recommendations and the final section addresses a new way of dealing with social, economic and environmental impacts in a way that empowers communities and creates jobs by addressing corporate social investment initiatives in a truly sustainable way.

We hope that mining houses will use this report to guide their corporate social responsibility initiatives and that they adopt ethical principles that will be central to how they do business. We also hope to empower government in addressing the impacts of mines and to empower local communities to play a more active engagement and monitoring role.

John Capel
Executive Director of the Bench Marks Foundation

Executive Summary

Leonardo da Vinci had the following to say about extractive industries 600 years ago:

That shall be brought forth from the dark and obscure caves, which will put the whole human race in great anxiety, peril and death. To many that seek them, after many sorrows they will give delight, and to those who are not in their company, death with want and misfortune. This will lead to the commission of endless crimes; this will persuade bad men to assassinations, robberies and enslavement, and by reason of it each will be suspicious of his partner. This will deprive cities of their happy condition; this will take away the lives of many; this will make men torment one another... For this the vast forests will be devastated of their trees; for this endless animals will lose their lives. (From the Notebooks in the Prophecies, quoted by George, 1992:xii).

The Bench Marks Foundation adopted and presented a set of “Principles for Global Corporate Responsibility” in 2003. These principles in essence calls for the respect for Human Rights, which is based on the Universal Declaration of Human Rights, the dignity of every person; for workers’ rights to organise a union and bargain collectively and for all core labour rights as defined by the International Labour Organisation; a new relationship between corporations, communities and eco-systems; preservation and protection of the environment for present and future generations; and commitment to the principle that every worker has the right of access to health care, accessible and affordable medicines, including anti-retrovirals for the treatment of AIDS.

The research that follows would suggest that corporate social responsibility should extend beyond labour rights and environmental concerns, to include communities disrupted by corporate activities, and communities affected by massive corporate operations such as mining and the right of access to health care, accessible and affordable medicines, including anti-retrovirals for the treatment of AIDS. Very often informal sector communities in close proximity to mining operations are the result of housing policies that are not properly thought through, migrant labour and the system of sub-contracting. The gender policies of the mines also mean that mining operations are predominantly male and that surrounding informal and formal settlements often function to provide sex and entertainment to male workers. As a consequence HIV and AIDS infection is highest in areas of major mining operations in South Africa, including the platinum-producing region of the North West Province.

Like South Africa as a whole, the mining industry is undergoing a transformation. The adoption of the Mining Charter, the functioning of the Balanced Scorecard and the associated social plans all indicate a commitment by the industry to function within the ambit of a new and radically different legislative framework. To a large extent the mining companies are already including communities in the ownership of operations, in their health programmes, particularly HIV and AIDS advocacy

and treatment programmes and in sharing in the wealth that is generated by mining. However, these policy interventions have their own limitations, and the fact that many mining operations still confuse corporate social responsibility with philanthropy and or hand outs to communities, has resulted in numerous problems associated with omissions, deliberate cutting of corners, and overt and covert misrepresentations.

The research process took place between April 2006 and August 2007. The first phase involved the gathering of information in hard copy as well as from the Internet from a variety of sources. This included studying definitions of corporate responsibility and best practice globally.

From this a standardised questionnaire was drawn up and submitted to [Anglo Platinum](#), [Implats](#), Lonplats and Xstrata for completion. Anglo Platinum and Implats completed the questionnaire, while Xstrata allowed for an extensive interview with Mr Thabo Moseki who is responsible for their corporate social responsibility programme in the Rustenburg area. There was unfortunately no response from Lonplats.

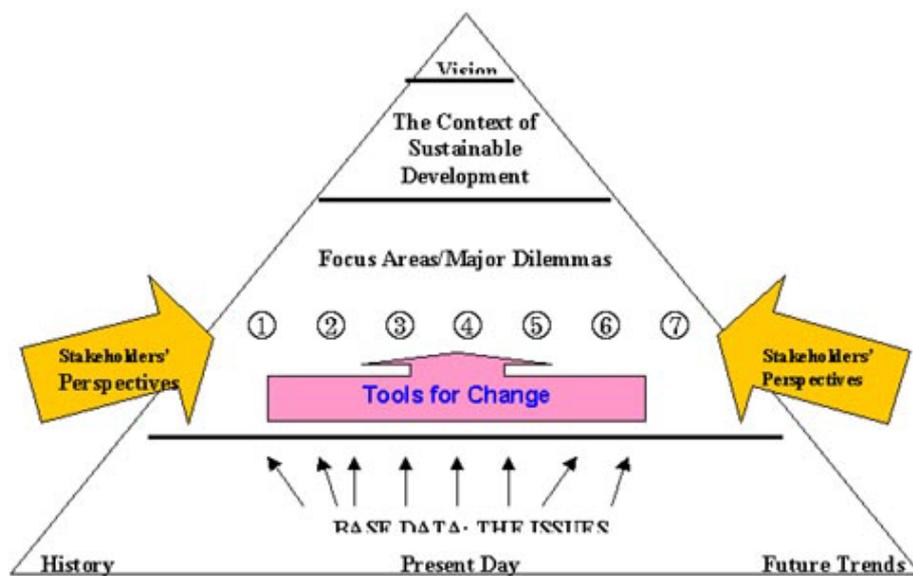
Concurrently with the questionnaire process, extensive interviews were held with mining officials, retired mining officials, health practitioners, farmers, civil society structures and provincial, local and district government officials.

Where interviewees allowed for the interviews to be recorded, transcripts were returned to them for consideration before the final print of the research report, to allow them to edit any inaccuracies. Some of the interviewees wanted to remain anonymous for fear of possible consequences to their work security. Interesting to note that both officials who did not want their identities disclosed worked for government, rather than for the mining sector.

On the whole mining officials responded candidly and with courtesy in the interview situation. In some cases such as that of [Xstrata](#) the response to the interview situation was one of enthusiasm for the corporate social responsibility programme of his corporation. [Impala](#) also responded positively.

On the civil society side, Non Government Organisations (NGOs), Faith Based Organisations (FBOs) and Community Based Organisations (CBOs) provided great clarity on the impact of certain corporate actions and policies on the wellness, health and environment of surrounding communities.

While the research is critical of some of the environment, social and health impact of mining on communities in the Platinum Region, the report demonstrates that many of the challenges resulting from mining can in fact be turned into entrepreneurial opportunities for marginal communities living in close proximity to such operations.



(Source, Mining, Minerals and Sustainable Development [MMSD]: *Breaking New Ground*: E-Book, World Business Council for Sustainable Development)

The research gained great insight into the various issues affecting mining and communities from the MMSD research guide, *Breaking New Ground*, which seeks to set global benchmarks and standards for the mining industry. From the guide it is clear that all the companies under review participate in MSSD activities and processes, but that they do not always implement the recommendations from this engagement to local contexts. Head office vision does not always translate into local, coalface practice.

This research triangulated information from a variety of sources, cutting across the qualitative and quantitative divide using mixed methods of research, for example quantitative questionnaires and qualitative open interviews, statistical information as well as qualified and value-laden sources of information. The research attempts to provide a holistic rather than a mono-causal interpretation

of the impact of mining in the context of the platinum producing area of the North West Province ([Olsen, 2004:23-24](#)).

For quality control the research findings were submitted to Professor Freek Cronjé of the School of Social and Government Studies of the University of the North West, and Mr Loselo Segwe, Business Development Management Facilitator at Harmony Gold.

The Bench Marks Foundation of Southern Africa sets itself the task of speaking on behalf of the poor, the powerless and the voiceless. Of necessity that is the perspective then that guided the investigation and underpinned it, influencing the final outcome. The research is not conclusive because it represents but a snapshot in fixed time of an ever-changing landscape. Perhaps the document raises more questions than answers, necessitating possibly a continuous assessment and review of the situation on the ground.

The Bench Marks Foundation Africa believes that investments and business ventures are acceptable if they contribute towards sustainable development that empowers local communities by promoting:

1. The quality of life and enhancing the environment
2. Productive employment on a broad scale
3. Meeting basic fundamental human needs
4. Gender sensitivity particularly at leadership level
5. Care for those infected and affected by the HIV/Aids pandemic, and
6. Pollution free production.

It is disconcerting to note that President Thabo Mbeki has in early August 2006, complained that the current Environmental Assessment Impact legislation in South Africa poses a hindrance to investment, job creation and poverty alleviation. The environmental situation in the platinum-producing region of the North West Province should be a matter of grave concern to all the communities living in this region. The complete lack of independent environmental monitoring capacity in the platinum-producing region is a matter that civil society activists should pursue vigorously to avoid permanent and irreparable damage to both the health of the affected communities and the environment they are living in.

The Bench Mark Foundation's assumption that management and investors will not voluntarily act in the interest of society and the environment is therefore a correct one. The mining industry in the platinum-producing region needs to be independently measured and monitored by external agencies, and there is an urgent need to develop independent monitoring capacity in this region. The Bench Mark Foundation's monitoring tool, itself needs to be constantly updated and adjusted

to take into consideration new challenges and opportunities that arise as the corporate landscape changes.

The research that follows has identified a number of challenges resulting from mining operations in the platinum region of the North West Province, but have also concluded that in many of these environmental and health challenges opportunities for enterprise development, job creation and poverty alleviation exist that could be tackled in a sustainable manner that will involve marginalised communities in meaningful self-driven economic activities, that will solve some of the challenges created by the mining activities in a win-win situation that will greatly improve conditions for all.

Section1: ECOSYSTEMS and RESOURCE EXTRACTION

1. Do the mining corporations under review pay careful attention to ensure that their actions do not damage the global and local environment regarding issues such as climate change, bio-diversity and pollution prevention? Do they adopt, as a minimum, internationally recognised standards and ensure that they are implemented universally regardless of any legal enforcement or lack thereof in any jurisdiction and seek continually to improve their performance? (1.1.c.1)

In their annual reports the mining companies under review report in some detail about their consumption of water and energy and about their management of waste and of substances that are being pumped into the atmosphere. All the companies set annual targets for all their operations to reduce energy and water consumption and to reduce pollution and damage to the environment.

A. SURFACE WATER

Name of Mine	Corporation	Commodities Mined	Status	Relative Size	Probable Impact
Rhino		Lead	Lead Prospecting	Small	Very low
Thabazimbi		Iron	Operating	Large	Low – Medium
Rhino		Andalusite	Operating	Large	Low
Zwartkop	Amplats	Chrome	Operating	Medium	Low
Koppie Aleen		Vanadium	Prospecting	Very small	Very low
Amandebult	Amplats	Platinum	Operating	Very large	Medium
Vlaknek		Vanadium	Prospecting	Very small	Very low
Northam	Amplats	Platinum	Operating	Medium	Low
Union	Amplats	Platinum	Operating	Medium	Low
Brakspruit	Amplats	Vanadium	Prospecting	Small	Very low
Kransberg		Vanadium	Prospecting	Small	Very low
Rooderand		Chrome	Operating	Medium	Medium
Rustenburg Minerals	Amplats	Chrome	Operating	Large	Medium
Ruighoek		Chrome	Operating	Very large	Medium – High
Ntuane		Chrome	Operating	Medium	Medium
Bafokeng Rasimone	Amplats	Platinum	Operating	Large	Medium
Impala	Implats	Platinum	Operating	Medium	Medium
Boshoek/ Boshhoek Opencast	Xstrata	Chrome	Operating	Medium	Medium
Wildebeestfontein		Platinum	Operating	Large	Medium
Boekenhoutfontein		Chrome	Operating	Medium	Medium
Impala – W'beestfontein	Implats	Platinum	Operating	Large	Medium
Ba-Magopa		Vanadium	Operating	Medium	Low – Medium
Paardekraal		Platinum	Operating	Medium	Medium
Maroela	Xstrata	Chrome	Operating	Medium	Medium
Noordwes		Chrome	Operating	Medium	Medium

Name of Mine	Corporation	Commodities Mined	Status	Relative Size	Probable Impact
Rustenburg – Waterval	Amplats	Platinum	Operating	Medium	Medium
Crocodile River	Implats	Platinum	Operating	Medium	Medium
Miusell		Chrome	Operating	Medium	Medium
Harmse – Waterkloof		Chrome	Operating	Medium	Medium
Karee		Platinum	Operating	Medium	Medium
Western Platinum	Lonplats (27% Implats)	Platinum	Operating	Large	Medium – High
Eastern Platinum Eastern Platinum	Amplats Lonplats (27% Implats)	Platinum	Operating	Large	Medium – High
Kroondal	Implats	Platinum	Operating	Large	Medium – High
Marikana Medium Marikana	Implats Lonmin	Platinum	Operating	Large	High
Kroondal B Kroondal Opencats	Xstrata Xstrata	Chrome	Operating	Medium	Medium
Rustenburg Chrome	Xstrata	Chrome	Operating	Medium	Medium
Wonderkop	Xstrata	Chrome	Operating	Medium	Medium
Kafferskraal		Chrome	Operating	Medium	Medium
Elandsdrift		Chrome	Operating	Medium	Medium
Elandskraal – Mooinooi	Xstrata	Chrome	Operating	Medium	Medium
Western Buffelsfontein	Lonmin	Chrome	Operating	Medium	Medium

PGM group mining operations in the Crocodile-Elands-Piensaars sub-catchment area (Source: Department of Water Affairs and Forestry).

The above table is an inventory of mining operations in the platinum-producing area and the relative risk to the water supply they pose.

The risk takes the form of run-off from mining waste sites into streams, marshes (vleis), dams and rivers.

In terms of mine wastes, material that are stored on the surface either temporarily or permanently, nine parameters have been identified in a risk assessment. These are:

- The composition of the waste material.
- The reactivity of minerals in the waste.
- The surface area of the waste facility.
- The size distribution of the waste material.
- The state of management of the waste facility.
- The quality of leachate, which emanates from the waste facility.
- The degree of toxicity to the most sensitive user who is likely to be exposed to leachate from the waste facility.
- The characteristics of the soil and rock, which underlie the waste facility.
- The development potential of the streams, marshes, dams and rivers, which are likely to become polluted.

The research has found that all the mines report that they actively monitor water usage and the potential for spillage or leakage into the surface water. The platinum-producing area is a high-risk area because the composition of the waste material produced by the mines contains heavy metals, which cause acid leachate when exposed to water and air (oxidization). Because platinum is found in a low grade ore huge quantities of rock waste is produced for a return of a relatively small amount of mineral, consequently mining waste covers vast areas around Rustenburg in the form of smelters, dams, tailings facilities, rock and sand waste facilities.

The final pH (measure of the acidity or alkalinity of a solution) of the leachate that emanates from the waste facility is a determining factor. Mine effluents of low pH are problematic because:

- The acid effluents have to be neutralised before they can be disposed of into public systems.
- The heavy metal content of acid systems is likely to exceed accepted groundwater quality standards.
- Aquatic life, in particular, is sensitive to high concentrations of heavy metals, such as aluminium, copper, lead and zinc.

Many of the mines in South Africa contain rocks that generate acid leachate. The acidity stems from the oxidation of minerals in the rock, when exposed to water and air. All the gold, platinum and base metal mines fall in this category. The surface and groundwater in the platinum producing area under review is therefore at risk from acid mine drainage.

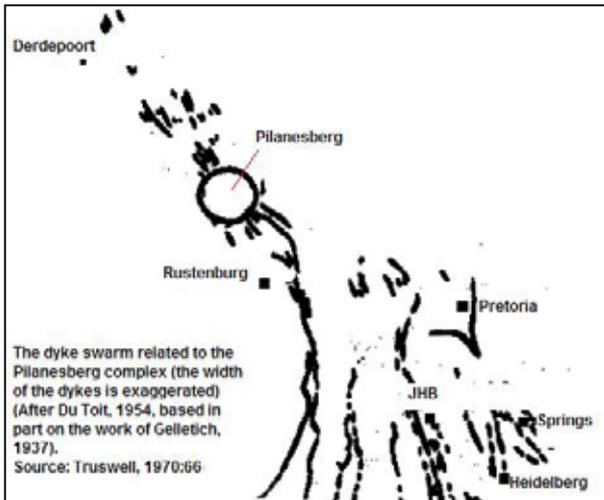
The research found a disturbing lack of capacity at local and district government levels to independently monitor the impact of mining on surface water. There is also a disturbing lack of awareness among communities in the area of the potential risk. In 1974 a tailings dam belonging to Implats in the Bafokeng area broke destroying buildings and infrastructure, causing death and injury and spilling into a river. Implats in its annual report states that insurance companies are refusing to insure their tailings facilities in the area. Discussions with risk assessors also indicate that insurers are reluctant to ensure against potential disasters posed by waste facilities.

GROUNDWATER

Groundwater is affected in a similar manner to surface water. In addition, mining also has a number of other impacts on groundwater:

- Dewatering, i.e. the pumping out of underground water contained in aquifers can lead to a drop in the water table and therefore the drying up of wells and boreholes;
- The perforation of impermeable dykes can lead to changes in the flow of direction of underground water. This may also lead to the pollution of water and the decanting of polluted water into surface streams through fountains. The perforation of dykes may also

cause a drop in the water table with dire consequences for farmers and communities depending on wells and boreholes.



- In a community satisfaction survey done by G3 Business Solutions and the University of the North West farmers accused Lonmin, for example of, “amongst other things... stealing water from the Buffelspoort dam, and that the boreholes had dried up as a result of mining operations.” (Chenga, Cronje, Naude, 2005:15). The mines use huge quantities of water in their operations. This water is

polluted with almost every step in the operations and the mines find it difficult and costly to purify the water beyond C grade status.

- The mines pump out water from underground aquifers as these pose a potential risk to operations. This further depletes the sources of underground water.

The research has found that there is a complete silence in annual reports on dewatering, the pollution of underground water and on the perforation of dykes. This is despite the fact that the platinum producing area is covered in a dyke swarm.

AIR QUALITY

All the mining companies under review report on the amounts of carbon dioxide and sulphur dioxide they are pumping into the air as part of the smelting process. Medical practitioners in Rustenburg report a dramatic increase in the incidence of respiratory diseases. The corporations admit to not meeting annual targets that they have set and commit to improving their performance.

Deep level mining requires massive air-conditioning systems to cool the air underground. Giant refrigeration systems on the surface produces the cold air which is then pumped underground, this results in the massive release of fluorocarbon gases into the atmosphere which damages the ozone layer. This situation is particularly prevalent at the ultra-deep level gold mines between Carletonville and Klerksdorp.

Tests done by Anglo Platinum in the suburb of Bergsig in Rustenburg found that air pollution levels were unacceptable, but shifted responsibility by claiming that Anglo Platinum was not the only polluter and could therefore not be held accountable.

Emissions	Chemical Compound	Effect
Greenhouse gas: - Indirect from imported electricity - Direct from operations (use of fossil fuels, 1215kg per ounce of precious metal mined, in 2005 for Anglo Platinum)	Carbon Dioxide (CO ₂)	Leads to global warming
Ozone-depleting compounds	-	Contributes to the hole in the ozone layer over Southern Africa. Increased skin cancer.
Persistent organic pollutants (POPs), from transformers and capacitors used on mines	PCBs, dioxins and furans	Cancer risk
Sulphur dioxide (SO ₂) emitted from smelters. (21 tonnes per day in 2005 for Anglo Platinum)	Sulphur dioxide. "SO ₂ emissions from the smelters have met all provincial scheduled process permit targets and have elicited positive comments from NGOs and the regulator" (Anglo Platinum, 2005:57)	Respiratory diseases
Particulate emissions: From point sources Dust fall out: Wind generated from tailings dams Crusher plants Transport generated from gravel roads	12 exceedances of the 12-hour average (1804g/m ³ over 24-hours) in Rustenburg during 2005. Dust may contain a concoction of chemicals, including radioactive materials, given the presence of uranium in platinum mines.	Cancer, rashes, irritations and respiratory diseases. Exceedances in dust fall out occurred at Boitekong (Paardekraal tailings dam), Klipfontein village (Klipfontein tailings complex) ¹

As with the case of water, compliance to international standards is not enough, the cumulative impact of such a large and increasing number of mining operations must have a negative cumulative impact on the environment. Each mine is measuring only their own activities, while local and district government lack the capacity to measure overall impact.

2. Do the mining corporations recognise that the presence of the platinum group metals (PGM) within the platinum producing area is an asset of the community of that area?
(1.1.C.3)

The mining corporations under review claim to recognise that the PGM resources represent an asset of the community. However, they have publicly stated their opposition to the Royalties Bill, and have pressurised government to keep the amount/percentage of royalties as low as possible. Neither Anglo

¹ Anglo Platinum, 2005:59

Platinum nor Implats could provide a formula to a question in the questionnaire on how they calculate royalties. Implats answered that it was “work in progress”, despite the fact that they have been paying royalties for decades! Evaluation of the quality of life of people living in traditional areas in the Bojanala Platinum District leaves the impression that the presence of the mines for more than thirty years has made very little positive impact on their quality of life. Some would argue that the conditions of many have even worsened as a result of the presence of the mining companies.

3. Have these mining corporations adopted and implemented company-wide environmental codes? (1.1.C.1)

They have adopted and implemented company-wide environmental codes, and consider environmental matters to be part of their “natural capital” or assets. However, there is little appreciation of the cumulative impact on the environment of so many operations in such a small area as that represented by the Bojanala Platinum District.

4. Have the Boards of the mining corporations under review established an active environmental committee, which reports back to it regularly? (1.1.C.2)

The mining companies employ full-time environmental experts, who regulate and assess environmental issues and who report on such matters in annual reports. There are no Board Committees focussing specifically on the environment.

5. Do the mining corporations under review have appropriate management systems to implement their policies? (1.1.C.3)

Yes, they do. The mines have re-treatment operations that seek to extract remaining minerals from wastes such as tailings facilities. Most waste facilities have monitoring technology installed to monitor water quality and to ensure compliance with targets or regulatory requirements. Most smelting and processing operations have air quality monitoring technology installed to measure emissions and compliance with targets or regulatory requirements. The results are published annually in sustainability/corporate social responsibility reports. However not all forms of impact are effectively measured. Thus, measurement of pollutant seepage into surface water is more easily detectible and measurable than seepage into ground water. It is impossible to assign blame to a single corporation for the cumulative depletion of ground water, or the corruption of ground water flow due to the perforation of dykes. Who assumes responsibility for the cumulative pollution of the air, etc? A number of rivers such as the Elandsdrift, the Heks and the Buffels Rivers are under threat due to their close proximity to massive mining operations and mining waste disposal facilities.

6. Do the mining corporations under review complete environmental assessments in which the unused, unexploited natural resources are stated as assets of the community? (1.1.C.4)

The corporations do produce estimates of mineral reserves, however, these are not reported as community assets. They are rather reported in terms of prospective profits and dividends. The companies under review also do environmental assessments. However, these assessments need to be done independently, as consultants in the pay of corporations could hardly be called on to be critical of the proverbial hand that feeds them.

7. Do the mining corporations under review produce regular public reports on their environmental performance and future plans. These are based on a pattern of environmental auditing and reporting according to, at a minimum, internationally recognised standards and include data for each facility? (1.1.C.5)

The mining corporations do produce environmental performance reports and future targets as part of the sustainability/social responsibility reports that are part of their annual reports. All the corporations also seek international standards accreditation with regard to their operations. However, there are many hydrological and geological issues not covered in either their reports or by national legislation or international conventions. This is particularly true for issues that will take a long time to become obvious, including the impact on underground water of the dewatering of aquifers, the perforation of dykes, the disturbing of faults, etc.

8. Do the corporations under review hold public consultations and seek collaboration from interested individuals and groups to review both past performance and its future plans, including the location of new facilities? (1.1.C.6)

South African law requires that mining companies engage in public consultation with regard to mineral rights and environmental impact. The problem is that there is a vast imbalance in knowledge, resources, wealth and power that underpin such engagements, and most communities are often cowed by the semblance of expertise presented by corporations at such gatherings. The power/knowledge nexus identified by French sociologist Michel Foucault comes into play here (Foucault, 1994: 111-133). When mines hold compulsory environmental impact assessment meetings with communities the representatives of the mines have a concentration of environmental, geographical, geological and hydrological knowledge in the delegation representing the corporation, whereas, in contrast communities have low levels of literacy and hardly any tertiary education. This imbalance of power works in the favour of the corporation.

9. **Where environmental damage does occur, do the corporations under review make every effort to reduce its impact immediately, to provide technical data to those working on the containment and repair, to restore the damaged ecosystem and to ensure appropriate measures are taken to redress injuries to persons caused by environmental hazards created by the company? (1.1.C.7.)**

In the event of catastrophic failure, where accountability can be readily traced back to the corporation this is probably the case. However, where there is a gradual increase in respiratory ailments in a particular area, for example, and the mining operation can claim that it is not the only contributory party this is not the case. Thus in the case of Rustenburg where the cumulative impact of emissions from the many smelters show an accompanying increase in respiratory problems, which corporation will be held liable? In Gauteng none of the mining companies want to take responsibility for the decanting of toxic water into surface water streams as a result of the historical perforation of dykes. No one has held mining companies responsible for the quakes in Welkom, Klerksdorp, Stilfontein and Carletonville even though it is commonly accepted that these were mining induced quakes. How do you determine which particular mining operation was responsible for the quake?



Merriespruit after the 1994 disaster. (Source: S. Engels, 1994)

The 1994 Merriespruit disaster occurred when a tailings dam broke and drowned a whole suburb in mud. This disaster could directly be attributed to a particular mining corporation and a particular operation, which meant that the community had some recourse. It is instructive to note that Implats reports that its insurers are refusing to insure its tailings waste facilities.

10. **The mining corporations under review have policies, practices and procedures to prevent pollution, reduce resource and energy use in each stage of the product or service life cycle? (1.1.C.8)**

Yes, they do, in so far as it affects their direct operations and their specific seepages and emissions. However, who assumes responsibility for the cumulative impact of many mining operations in a

relatively small geographical area? Who assumes responsibility for those mining induced disasters that cannot be attributed to a single operation? Why are insurance companies reluctant to insure mine waste facilities? Thus Implats' Impala operation has a Minerals and Air Quality Management Policy and an Environmental Management Programme (2001:55).

11. Do the mining corporations under review make periodic environmental assessments and include, but are not limited to:

- ✓ Environmental impact;
- ✓ Physical infrastructure impact;
- ✓ Social infrastructure impact;
- ✓ Cumulative (synergistic) impacts (1.1.B.2)

The mining companies do make annual environmental impact assessments, however these mainly focus on environmental impact. The other critically important impacts are ignored, as they can usually not be laid at the door of a single operation or corporation, thus allowing corporations to escape liability. This is probably why the mines refuse to take responsibility for the water crisis in Gauteng, the impact of mining induced seismic events, the increase of alcoholism, STDs and HIVs in communities in the proximity of mining operations, the impact of the fall of the water table on agriculture, or for a general increase in respiratory ailments in a community.

Date	Time (SAT)	Region	Intensity	Magnitude	Remarks
08/12/1976	10h38	Welkom	VII	5.2	Extensive damage to many buildings and breaking of windows. The most dramatic was the collapse of a block of flats; six storeys high, which took, place 75 minutes after the seismic event.
07/03/1992	02h43	Carletonville	VII	4.7	Unusual amount of damage recorded, due to the high population density around the epicentral area. Houses were damaged as far as Pretoria.
22/04/1999		Welkom		5.1	Dagbreek Fault
10/1997		Hartebeesfontein		3.7	Bosman Fault
31/072001		Klerksdorp Gold Mines		5.0	Damage to buildings and property.
/03/2005		Stilfontein Klerksdorp Gold Mines		5.3	Unusually high levels of damage to property and buildings. ²

² Saunders I. South African National Seismograph Network (SANSN) FDSN Report 2005 Ian Saunders Council for Geoscience ians@geoscience.org.za

12. Do the mining corporations under review have policies which includes performance standards relating to:

- ✓ **Protection of the biosphere;**
- ✓ **Sustainable use of natural resources;**
- ✓ **Reduction and disposal of waste;**
- ✓ **Reduction of anthropogenic greenhouse gas emissions;**
- ✓ **The development of renewable and alternative energy sources in place of the reliance on fossil fuels;**
- ✓ **Energy conservation;**
- ✓ **Risk reduction;**
- ✓ **Safe products and services**
- ✓ **Environmental restoration;**
- ✓ **Informing the workers and the public. (1.1.B.3)**

Theoretically they do, and this is reported on extensively in annual sustainability/corporate social responsibility reports. However, minerals are a finite resource and the minerals of the PGM will eventually be exhausted. All the corporations set annual targets for the reduction of pollution and harmful emissions. **None refer to alternative energy sources to fossil fuels.** All set targets to reduce energy consumption, reduce risks and express commitment to environmental restoration. Any resident of Gauteng will give witness that environmental restoration after a mining operation is impossible.

Summary of issues arising from Section 1

Strengths	Weaknesses	Recommendations
All report in some detail about their consumption of water and energy and about their management of waste and of substances that are being pumped into the atmosphere. All the companies set annual targets for all their operations to reduce energy and water consumption and to reduce pollution and damage to the environment.	Certain important long-term matters of geological and hydrological importance are excluded.	The excluded matters must be brought into the public domain for discussion.
Mines do monitor and set targets on environmental matters	The research found a disturbing lack of capacity at local and district government levels to independently monitor the impact of mining on surface water. There is also a disturbing lack of awareness among communities in the area of the potential risk. In 1974 a tailings dam belonging to Implats in the Bafokeng area broke destroying buildings and infrastructure, causing death and injury and spilling into a river. Implats in its annual report states that insurance companies are refusing to insure their tailings facilities in the area.	NGOs, CBOs, FBOs etc. must all lobby for an improvement in independent monitoring capacity, both by civil society structures and local and district government.
The mining corporations under review do make periodic environmental assessments of environmental impact.	However, physical infrastructure impact, social infrastructure impact and, cumulative (synergistic) impacts are largely ignored.	The negative impact of mining beyond environmental issues must be brought into the public domain and discussed.

Section 2: Local Economic Development and Supply Chains

1. **Do the corporations have policy statements that measure their social, environmental and economic impact on local communities affected by their operations in the Bojanala Platinum District (including Phokeng, Rustenburg and Brits) and abroad or are they in the process of developing such statements? (1.3.C.1)**

Each of the corporations is governed by the [Mining Charter](#) and are required by this document and the [Minerals and Petroleum Act](#) to develop a social plan and report in terms of a balanced scorecard if the company is to successfully translate “old order” mining rights into “new order” mining rights. Anglo Platinum refers to this document as its “Sustainable Development Report”, Xstrata refers to it as its “[Sustainability Report](#),” while IMPLATS refers to it as its “[Corporate Responsibility Report](#).” The corporations are each “independently” evaluated according to the balanced scorecard. Xstrata was evaluated by URS Verification Limited; Anglo platinum was reviewed by KPMG, while Price Waterhouse Coopers verified IMPLATS.

Given the immensity of a mining operation and the sheer scale of the corporations’ size, power and wealth vis-à-vis local communities, civil society structures (NGOs, CBOs, FBOs) and even local and provincial government, there is need to consider an evaluation process which is not underpinned by the market or client relationship that underpins the current evaluations. It is necessary to give communities a far greater say in the process and its outcomes.

2. **Do the corporations, in consultation with the local community, establish a policy that incorporates into their business plans the best interests of the community, both now and into the future? (1.3.C.2.)**

All the corporations where they have operations consult with local communities ostensibly to establish policies that on the surface incorporate the best interests of the community. However, the process and outcomes of these consultations are fraught with problems:

- ✓ The extent of knowledge about the impact of mining on the land, the environment, resources, culture etc. cannot possibly be foreseen by communities who have had limited exposure to technology, have high levels of illiteracy and no knowledge of geology, chemistry or hydrology. This results in a power knowledge imbalance that invariably favours the corporations.
- ✓ Communities are seldom homogenous entities and may contain many different interest groups within a specific community, the mining corporations can exploit these difference to divide communities and obtain approvals that seem to reflect the will of a community when in

fact such agreements often reflect the interests of a power elite representative of emerging business or some interest group which does not necessarily represent the will of the entire community.

- ✓ Communities are not static. There are those within a community who are traditionalist and conservative; others are modernising and keen to embrace change. Others are wealthy and powerful and might be driven by greed. Still others are poor and weak and motivated solely by a desire to survive from day to day. Communities are also wracked by the generation gap and by gender issues.
- ✓ Communities do not have access to the same expertise or knowledge as mining corporations. They cannot afford the same level of legal advice, environmental understanding, or financial acumen as the mining corporations. In many cases they have to resort to the state as the only arbiter able to marshal the same degree of power as the corporations. While communities have been able to utilise the judiciary and win a number of landmark cases against the corporations, their attempts to utilise structures of government have been less than successful. While government is supposed to be the representative of the people, a blurring of government and private sector interests due to the fact that senior civil servants and in some cases politicians serve both government departments and private sector interests (they are deployed in both departments and on boards of mining companies) has undermined government as a neutral arbiter in disputes between corporations and communities.

Given the above the entry of the mining corporation into the community equation may result in factions arising. Such factions might use the prospect of greater wealth and prosperity as a weapon against other factions in the community. Issues such as royalties, projects and even the prospect of employment might prove divisive and destructive of communities. There have been a number of [cases](#) involving the Bafokeng and the Bakwena in the North West Province, and communities in [Limpopo](#) and [Mpumalanga](#) that illustrate the negative impact that a mining operation might have on communities.

Noting the immense imbalance of power and wealth between mining corporations and communities, the interventions of the former “concerning the best interests” of the latter has often been condescending (patronising).

Despite the best of business plans and intentions about the present and the future, many of the policies of the mining companies have had, perhaps unintended, negative consequences such as the growth of informal settlements and urban squalor, rampant HIV and Aids in surrounding communities and alcoholism. Most communities are unaware of the long-term impact of mining on the

environment, geology and the hydrology of the areas in which they live (regardless of how good the closure plans of corporations are).

Despite the above concerns all the corporations must be credited for their involvement in community education and training programmes, promoting agriculture, housing programmes, business development programmes and even in school feeding schemes. ***However, their involvement is often driven by a desire to assist local and district governments attain targets set by Industrial Development Plans (IDPs) and Local Economic Development Strategies (LEDs) objectives rather than to avert the negative impact of mining on the environment, local agriculture and the health of communities.***

3. Do the platinum mining corporations affirm the central importance of sustainability for communities (in the present and in the future), for the integrity of human beings, culture, society, economic well-being, environmental responsibility and the way of life of the people? (1.3.C.2)

By their own account these corporations do affirm the importance of sustainability for communities, however by its very nature mining as an industry is often [destructive](#) of the integrity of human beings, culture, society, economic well-being, the environment and the way of life of the people. There is a fundamental contradiction that operates: the corporations are driven by the need to maximise profits for their shareholders, while communities resided in the region prior to mining and will continue to reside there long after mining has ceased. Communities are concerned with the quality of their lives and their environment long into the future.

Minerals are finite resources. Platinum will be mined out in the next 30 to 50 years, however the negative impact on the environment might last forever. As Michelle Nel puts it: "Mining is not sustainable. Once the resource is depleted, mining ceases, often leaving behind a legacy of deleterious environmental impacts." (Nel (ed) 2006:12)

Those living in the Bojanala Platinum District of the North West Province should look towards Gauteng to assess the long-term commitments of mining corporations to the environment. Cathy Reichardt points out that mines that were responsible for perforating the dykes under Johannesburg during the twentieth century creating an immense water problem refuse to assume responsibility for this disaster. "There has been a culture of denial around dewatering issues and a lot of head in the sand activity." (Reichardt quoted in Ryan, B. and Kay, C. in Nel (ed) 2006:44)

Government maintains it's the mines' responsibility to deal with the water problem in terms of their environmental rehabilitation commitments. Mines are required to set up trust funds to meet these costs of closure... Reichardt comments. "South African legislation with respect to mine

closure is largely untested and it will require some test cases to establish legal precedents.” Hence the legal brawl between the mines in the Klerksdorp region because no one wants to get stuck with the final bill. She points out that “making ‘adequate’ financial provision for closure liability is a legal requirement but there is a lack of clarity on what is ‘adequate’”. (Ibid. 46-47)

The Bojanala Platinum District is covered with a [dyke swarm](#) that stretches from Pilanesberg through to Johannesburg. This dyke swarm determines the flow of underground water, the water table, the location of fountains etc. Most of the people in the Bojanala District are dependant on underground water drawn from wells and boreholes, very few outside of the mining industry are aware of the [impact](#) of the perforation of dykes on underground water. The issue is not mentioned in any social responsibility reports and one may reasonably doubt that it is even discussed at Environmental Impact Assessment (EIA) meetings between communities and corporations before operations commence. Mining companies should also discuss with communities the long-term potential impact of mining on geological features such as [faults](#) and the implications thereof for communities.

Medical practitioners report a dramatic increase in [respiratory ailments](#) amongst patients in the Rustenburg area over the last five years. Mine waste management; particularly of sand, stone, and tailings combined with emissions of CO₂ (carbon dioxide) and SO₂ (sulphur dioxide) contribute to a toxic mix, which affect breathing. Combined with a lack of access to electricity, running water and sewage [in informal settlements](#) and rural villages in the vicinity of the mines, the health and welfare of the population could be described as poor.

The gradual phasing out of the migrant labour system, the outsourcing of hostels, subcontracting and the “living out” allowance for mine workers has resulted in large numbers of ‘single’ men moving into surrounding communities. These men are often from other countries, or from other provinces. This has led to [vigilantism](#), mob-justice, [xenophobia](#), increased sex trade, the undermining of traditional authority, increased alcoholism and the rapid growth of the sex-trade and consequently the spread of sexually transmitted diseases and HIV and AIDS.

4. Do the mining corporations under review evaluate all of their operations in the light of community sustainability? (1.3.C.3)

Yes, they do so in terms of the specifications of the Mining Charter, the balanced scorecard and their social plans, and in terms of the minerals and energy legislation. However, these documents and the manner in which the assessments are done leave much to be desired. Some of the shortcomings have already been discussed above. The local IDPs and LEDs do not address the impact of mining and by funding and supporting these the mining companies are not addressing the most critical issue confronting communities.

The self-evaluation takes place within the context of rather low benchmarks set in the Mining Charter. In addition to the factors that negatively impact on community sustainability already mentioned, a combination of labour and housing policies of the mining corporation are unintentionally putting immense strain on communities and community infrastructure.

Home ownership schemes, actual and plans	2005		2006 Target
Home ownership promotion			
Number of participants	1331		2000
Number of employees participating in subsidy schemes:			
Housing bond subsidy scheme	3 261		1 382
Home rent subsidy scheme	23 729		25 568
Total	28 235		28 195
Hostel accommodation, actual and plans	2004	2005	2006 Target
Employees in hostels			
Total number	15 885	14 928	15 325
As a percentage of total employees	37	34	31
Hostel de-densification			
Converted rooms, as a cumulative percentage	7	30	57
Capital expenditure, R millions	14,1	38,0	49,1

Source: Anglo Platinum Sustainable Development Report, 2005:91

The above table shows that 23 729 mineworkers from Anglo Platinum alone (add to this the former hostel dwellers from other mining corporations) participate in the home rent subsidy scheme, or as it is more commonly known, the “living out allowance”. Even before the introduction of this scheme demand for housing in Rustenburg’s townships far exceeded supply, resulting in the rapid growth of informal settlements. With tens of thousands of mineworkers coming into the equation as a result of the “living out allowance” the pressure on already inadequate infrastructure and housing must be immense.

The mineworkers who are thus flooding into local communities are often “foreign” coming either from other provinces or other countries. Given long waiting lists for housing for locals the addition of these workers can only result in conflict between the locals and the foreigners with the resultant xenophobia, vigilantism, mob violence and crime. Most of these mineworkers do not find formal housing to rent and find themselves in informal shacks without water, electricity, or sewage. Former migrant workers taking up residence in informal shacks in close proximity to the mines also expose these workers to poor nutritional levels, as they now have to feed themselves. Lack of electricity and running water also expose these former migrant workers to respiratory and potential water borne diseases.

One wonders whether the mining companies consulted with local and district government before releasing this flood of new residents on them through the mechanism of the living out allowance.

5. Do the mining companies under review establish a consultative structure, including a senior director and representatives of stakeholders identified by local communities, society and its own workforce, which meets on a regular basis to discuss the company's business goals in relation to community needs, including social and environmental concerns, community sustainability and respect for the dignity of all persons? (1.3.B.3).

Implats has a Corporate Responsibility Director with an independent budget, which engages with stakeholder structures such as the Rustenburg Community Development Forum among others. Anglo Platinum operates under the Anglo American and Anglo Platinum Chairman's Fund and engages with the integrated development plans (IDPs) and local economic development (LED) processes. Thus the Bojanala Platinum District Municipality councillor responsible for economic development [reported](#) very favourably about the relationship between the council and Anglo Platinum. Xstrata is also involved with a variety of structures. All three mining companies actively cultivate a positive relationship between themselves and the Bafokeng Traditional authority. They do not have consultative structures outside of the departments/divisions within the companies responsible for corporate social responsibility.

The mining corporations seem to prefer dealing with labour and community issues separately. Each of the mining companies identifies the stakeholders that it wishes to engage with rather than these being identified by the community. There are no processes through which the communities are able to identify who will represent them in their interaction with the corporations except the electoral process leading to the election of local and district councillors.

There are a number of complicating factors at play in the platinum-producing area of the North West Province:

- ✓ The absorbing of representatives of traditional authorities onto the boards of mining companies blurs the lines of responsibility of such people in the competing interests of the tribe and that of the mining corporations;
- ✓ The funding of NGOs by corporations can have compromising results for the NGOs;
- ✓ The presence of [senior government officials](#) (civil servants and politicians) on company boards can have compromising consequences for the public good (i.e. the [Director General in North West Province sits on the Board of African Rainbow Minerals](#), a partner to Anglo Platinum in some its operations).

It must be understood that the mining corporations consider their shareholders to be their primary stakeholders and account to the shareholders through their annual general meetings (AGMs). The business reports are therefore published separately from the social development, sustainability or responsibility reports in the sense that the one report seeks to show compliance with the legislative "social" responsibilities of the corporation and the other demonstrates profitability and growth to

shareholders. Interestingly, the EU reported investment support for mining operations in Southern Africa (Martin Creamer on SABC radio's Morning Live programme, on 17 November 2006) that out of 101 mining projects to be supported in Southern Africa only two are in South Africa (the least) while 34 are in Zambia. It is speculated that this is as a result of South Africa's much stricter legislative (as far as social responsibility) regime. De Beers is retrenching workers from its diamond mines and scaling down its mining operations in South Africa (effecting a gradual disinvestment). Again conservative commentators point a finger at the legislative landscape in mining.

6. Do the mining corporations aspire to integrate the interests of all stakeholders with that of their own business goals? (For example; local farmers) (1.3.C.8)

If one considers the procurement policies of the mines, and therefore the flow of money and economic opportunity to local communities, a clear picture of a centre periphery image emerges. Thus, Anglo Platinum aims to raise procurement from local companies to only 5%, and procurement from Historically Disadvantaged suppliers to 2.5% and 27.5% from HDSA empowered companies by 2012 (Anglo Platinum Sustainable Development Report, 2005:inside cover). Clearly local communities will see little benefit from the mines operating in their areas. HDSA empowered companies are essentially white owned companies who have 27.5% HDSA shareholding, (according to new regulations proposed by government in October 2006 a company will remain empowered even if it loses its 27.5% HDSA component).

Mines procure very little locally, and if one considers the targets spelt out above it will be a very long time before they procure significantly from local suppliers.

7. Do the mining corporations recognise various stakeholder groups and establish an inclusive and exhaustive consultation process with them? (1.3.C.9)

The mining corporations recognise the following stakeholder groups:

Social Responsibility Stakeholders	
Government:	
National government	Legislative compliance, issuing of mining licences and new order mining rights
Provincial government	Provincial IDPs and provincial economic development processes
Local government	Support for LEDs and IDPs
Traditional Authorities	Royalties for the land use
Environment NGOs	Environmental impact of mining
Community Based Organisations	Often including traditional authorities. Community impact of mining
Social NGOs	Health impact, social impact. Education, Health, Skills development etc.
Business/Corporate Stakeholders	
Shareholders	Annual general meeting. Meetings with Analysts and major shareholders. Investor presentations. Engagement through the business media.
Suppliers	Mining conferences, procurement meetings, business media etc.
Customers	Most of the consumers of platinum are from Japan, China and the United States of America, particularly the motorcar industry.
Employees	All the corporations recognise South African labour law and the prescripts of the ILO

The table below shows the kinds of NGOs Anglo Platinum engages with and the manner of their engagement (Sustainable Development Report:2005).

Non-Governmental Organisations	Area of Focus	Relationship to Anglo Platinum	Method of Interaction
Association of Black Professionals in Mining	Network of black professionals in mining supporting entry and development of blacks in the industry.	Community development, mentorship and support	Meetings, seminars and workshops
African Pathways for Youth Development	Polokwane-based youth development and training organisation	Social impacts and community development	Meetings
Environmental Justice Network Forum	S.A. environmental watchdog	Environmental impacts	Meetings
Kroondal Environmental Forum	Rustenburg area environmental watchdog	Environmental impacts	Meetings
LimDev	Limpopo Business Development Agency	Business development training and funding	Workshops
Limpopo Education Development Trust	A public-private partnership to develop education in Limpopo province	Educational development in Limpopo	Meetings and workshops
Limpopo SMME Agency	A government funded business development agency	SMME development and support	Meetings and workshops
Limpopo Business Support Agency	A government funded business development agency	Business development training and funding	Meetings and workshops
South African Small Scale Mining Forum	A forum of small scale BEE/marginal mining operations	Community development, mentorship and support	Meetings, seminars, workshops
Vision of the Nation and Tshupe Hospice	A Home-based care centre for HIV/AIDS patients around local communities	Provider of home based care services funded by the Group	Meetings
Limpopo Wetlands Forum	Limpopo environmental group	Environmental impacts	Electronic and meetings
Mpumalanga Education Development Trust	A public-private partnership to develop education in Mpumalanga	Educational developments in Burgersfort	Meetings and workshops
North West Eco Forum	Rustenburg area environmental watchdog	Environmental impacts	Meetings, consultations and presentations
North West Education Development Trust	A public-private partnership to develop education in North West Province	Educational development in the North West Province	Meetings and workshops
Royal Bafokeng Economic Board	Economic board of the Royal Bafokeng Nation looking at SMME development	An important partner in the development of SMMEs in and around RPM operations and communities.	Meetings, consultations and presentations
Royal Bafokeng Resources – Environmental Management	Environmental arm of the Royal Bafokeng Nation looking at environmental issues.	Partners Anglo Platinum in environmental issues in and around RPM operations and communities.	Meetings, consultations and presentations
Sekhukune People Development Trust	Graduate and skills development in Sekhukune district municipality	Community development	Meetings
Trade and Investment Limpopo	Investment agency for Limpopo	BEE supplier, development and preferential procurement	Meetings
Waterberg Biosphere Reserve	Limpopo nature conservancy body	Environmental impacts	Meetings
Environment society of South Africa	S.A. environmental organisation	Environmental impacts	Meetings.

8. Do the mining companies contribute to the long-term environmental, social, cultural, and economic sustainability of the indigenous peoples, nations or communities in which they operate? (1.4.P.4)

We have already seen the impact of the housing and labour policies on local communities and the resultant xenophobia, vigilantism and mob violence. Kgosi Pilane of the [Bakgatla](#) tribe died as a result of conflict between ‘foreign’ mineworkers and locals, and in a separate incident a week of [violence](#) erupted in which locals attacked Zimbabweans resulting in death and destruction.

The Bafokeng Tribe is normally held up as an example of the benefits of the mining industry to indigenous communities. The economic well-being of people living in Phokeng, the capital of the Bafokeng should therefore demonstrate the “trickle down” of such benefits.

The statistics that follow have all been derived from Statistics South Africa.

Sanitation	Sun City	Ledig	Phokeng	Rustenburg
Flush	45,9%	3,5%	3,6%	44,1%
Pit Latrine	52,2%	92,2%	94,9%	47,8%
Other	1,9%	3,6%	1,4%	8,2%

94,9 % of people in Phokeng still use pit latrines. This is because they do not have access to running water. The fiasco in Delmas at the start of 2006 where an outbreak of typhoid swept through the community demonstrates what the impact of pit-latrines can be on underground water. The majority of people in Phokeng still do not have access to running water and depend on wells and boreholes. This community will also feel the impact of pit latrines and mining on underground water.

Electricity	Sun City	Ledig	Phokeng	Rustenburg
Local authority	47,9%	10,0%	12,3%	50,2%
Paraffin	7,5%	18,3%	13,6%	7,6%
Candles	43,3%	67,0%	72,6%	40,7%
Wood	0,7%	3,5%	1,1%	1,2%
Others	1,3%	4,8%	1,5%	2,0%

Only 12,3% of people in Phokeng has access to electricity, the vast majority use paraffin, candles and wood.

Employment	Sun City	Ledig	Phokeng	Rustenburg
Employed	71%	56%	61%	74%
Unemployed	29%	44%	39%	26%

39% of people in Phokeng are unemployed!

Annual Individual Income	Sun City	Ledig	Phokeng	Rustenburg
None	43,2%	56,7%	61,4%	42,4%
R1 – R 6000	5,9%	9,9%	9,5%	8,9%
R6 001 – R 18 000	10,7%	11,2%	16,0%	15,1 %
R 18 001 – R 18 000	10,1%	4,9%	5,8%	8,6%
R42 0001 – R72 000	4,4%	0,7%	0,7%	2,6%
R72 001 – R132 000	1,9%	0,2%	0,1%	0,3%
R132 000 and over	0,6%	0,1%	0,1%	0,3%
NA	23,2%	16,0%	6,0%	21,2%

61,4% of individuals living in Phokeng has no annual income! Phokeng is situated in the middle of one of the richest mining areas on the planet. Mining corporations of which the three under review here are amongst the biggest in the world realise billions of Rand worth of profit every year, yet the condition of the Bafokeng people can only be described as one of stark poverty.

Issues arising from Section 2

Strengths	Weaknesses	Recommendations
Each corporation has clearly defined sets of business principles as defined by the legislative landscape within which they operate and by the Mining Charter	Much of what is contained in the legislation is poorly defined, e.g. what is "adequate provision" for closure? Many critical issues are simply not covered. The Mining Charter in its current form is not sufficiently consultative, the main stakeholders involved in its drafting were mining corporations, Labour and Government. Civil society structures were not adequately represented.	Legislation needs to be regularly reviewed. The Mining Charter itself should be up for regular review. Decisions relating to mining needs to be done in a more consultative and inclusive manner.
Mining companies do consult with communities and community structures	The balance of power in these consultations is skewed towards the mines. Communities negotiate with mines from a position of weakness in terms of legal, environmental, geological and hydrological issues. The absorption of community leaders, senior civil servants and politicians onto the boards of corporations represents a serious conflict of interest and serves to blur the lines between the public and private sector, which further weaken communities and represents a serious conflict of interest.	Local government, district government, NGOs, CBOs and FBOs should assist communities in overcoming this capacity deficit. NGOs, CBOs and FBOs must strongly contest the presence of community leaders, civil servants and politicians on boards of private corporations.
Mining companies are spending a lot of time and resources on environmental issues.	They give attention to environmental issues in an attempt to comply with legislative requirements. None of their reports admit that mining activities are partly responsible for the increase in respiratory diseases in the area, or for the HIV/AIDS pandemic. The cumulative impact of many competing mining interests on	Local government, district government, NGOs, CBOs and FBOs need to assist communities to secure reparation where mining activities can be shown to be responsible for health problems in communities.

Strengths	Weaknesses	Recommendations
	the environment in the same area is not clear.	
Mining companies do invest millions in social responsibility programmes.	Their total investment is but a fraction of total profits.	Perhaps a social investment/total profit ratio and formula needs to be calculated as a yardstick to ensure adequate sustainable investment.
Clearly defined and reported on indicators of corporate social citizenship as defined by the Mining Charter	In the case of Extrata global and local indicators are often not clear. Certain issues are simply not dealt with. Where companies have lost cases against communities involving bad corporate citizenship, these are simply not reported on.	Mining corporations in South Africa should be held accountable here for their activities in other countries and vice-versa. This will help to establish global corporate social citizenship standards of good practice.

Section 3: Training and development of local managers and employees

1. Do the mining corporations under review develop a transparent process for the inclusion of indigenous peoples as full participants in business decisions? (1.4.C.7)

No. Indigenous peoples, if narrowly defined as local traditional/"tribal" or ethnic groupings are not full participants in business decisions. In some cases such as the Bafokeng traditional authority, there might be representation on the board or senior management. However, global, macro decisions are taken at head office.

If indigenous people are broadly defined as inclusive of HDSAs (such as black South Africans) then the answer might be a qualified yes, although power is still very much weighted in favour of white males as the examples below will demonstrate.

The day-to-day running of the mining corporations is dealt with at a management level. Macro-economic and business decisions are taken at head office level, in Johannesburg in the case of Implats, London in the case on Anglo Platinum and Xstrata in Zug Switzerland.

Local management at the operational level take the day-to-day business decisions, at a specific operation. The Mining Charter requires that corporations reflect a 40% HDSA content by 2009. All three corporations are looking to realise this target by 2009.

Obviously neither Anglo, nor Xstrata are under any obligation to do so in their London or Zug Head Offices.

What follows is a breakdown by corporation of management composition by race and gender.

A. Anglo Platinum

Senior Management:

White	White Male	White Fem	Black	Black Male	Black Fem	Male Total	Fem Total	Tot
32	31	1	8	7	1	38	2	40
80%	77.5%	2.5%	20%	17.5%	2.5%	95%	5%	100

The above tables show that 11 years into democracy (2005), senior management Anglo Platinum is still 80% white, 77,5% white male and 95% male. It is interesting to note that it took the threat of the Minerals and Energy Bill to force transformation onto the mining industry. It was the threat of the said Bill, which finally spurred the mining industry into action.

Many other sectors of society and the economy began challenging Apartheid long before 1994, by assisting in the educational opportunities of black students and by appointing such graduates to key positions. The private sector in general and the mining industry in particular often hide behind claims that there are insufficient skilled and qualified black people to meet the skills needs of industry. Yet thousands of black graduates in this country walk the streets unemployed. The banking sector, a close ally of the monopolistic mining industry, even sponsored an ill-considered attempt to lure “skilled” whites who fled the country to return in the so-called “home-coming” revolution.

Anglo Platinum claims that it will have 40% black representation in “Patterson C-level” (junior management) and above by 2009. It is disingenuous to lump junior, middle and senior management together and then report a score. Management and decision-making power rests with senior management, and it is at this level that the general public will judge Anglo Platinum in 2009. Anglo claims that it will achieve 37% HDSA representation in management by 2006. However, the bulk of HDSA deployment in management is at the junior management level.

Board Composition (as at October 2006):

White	White Male	White Fem	Black	Black Male	Black Fem	Male Total	Fem Total	Tot
13	13	0	6	5	1	19	0	19
68.4%	68.4%	0	31.6%	26.3%	5.3%	100%	0	100

The above tables reflect the 2005 board representation by race and gender. The gender and race imbalances are obvious. Anglo Platinum, like the other mining corporations apply a narrow definition of HDSAs, which seems to exclude people with disabilities.

Anglo Platinum Executive and Non-Executive Members of the Board by Race:

	White	Black	Total
Executive	5	1	6
Non-Executive	7	5	13
Total	13	6	19

Source: Anglo platinum Sustainable Development Report, 2005: 21.

The above table representing executive and non-executive directors by race shows that power is still firmly weighted in favour of white members of the board.

HDSA participation in management, actual and planned, %	2004	Plan 2005	Actual 2005	Target 2006
Top management	7,1	10,0	7,1	10,0
Senior management	11,0	13,5	23,0	17,6
Middle management	28,9	30,0	30,5	34,0
Junior management	40,1	42	44,9	45,0
Total HDSA/total employees as a %	32,5	34,0	36,0	37,0
Women participating in mining, actual and plans,%				
Top management	0,0	0,0	0,0	0,0
Senior management	4,6	4,6	6,1	6,3
Middle management	14,2	12,7	13,8	13,7

Junior management	13,2	14,0	15,4	15,0
Other	10,0	9,9	10,5	11,1
Semi-skilled	2,6	3,2	2,8	4,6
Unskilled	10,5	10,3	13,1	12,7
Total Women/total employees as a %	4,8	5,5	5,8	6,9

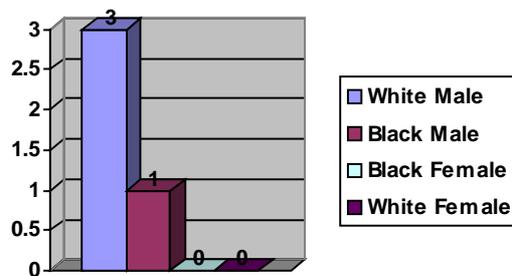
Source: Anglo Platinum Sustainable Development Report, 2005:100

B. Implats

Board of Directors

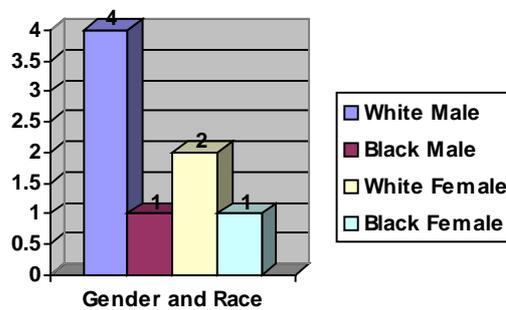
White	White Male	White Fem	Black	Black Male	Black Fem	Male Total	Fem Total	Tot
9	7	2	4	3	1	10	3	13
69,2%	53,8%	15,38%	30,76%	23%	7,69%	76,9%	23%	100%

Executive Directors



75% of executive directors are white males, and 25% black male; there are no female or disabled executive directors at Implats.

Non-Executive Directors



50% of non-executive directors are white males, 12,5% are black males, 12,5% are white females, and 12,5% are black female.

Implats, like Anglo Platinum, complies fully with the King Commission Report requirements for the structure and functioning of management. However, its EXCO is still 61,5% white male, 23% white female, 7,7 % black male, 7,7% black female. Like with Anglo, ***there are no disabled people in the Implats EXCO.***

2. Do the mining corporations provide employment and training opportunities for, and actively recruit from, indigenous communities for all levels of employment? (1.4.C.8)

The answer is again a qualified yes. The answer is qualified because pre-1994 the mines were heavily reliant on migrant labour. The mines are currently all gradually phasing out migrant labour and mine hostels. However, many migrant workers are now working for sub-contractors, sub-contracted by the mines. Many others have taken advantage of the “living-out” allowance and moved into informal settlements surrounding the mines, and although they are foreign they are no longer considered “migrant”. All the corporations claim to favour a recruitment policy that favours local labour, however, local labour does not necessarily translate into “indigenous labour”.

The mines do offer extensive training and skilling opportunities to all labour.

3. Are training, development, promotion and advancement opportunities within the company available to all employees of the company, regardless of status, whether full-time, short-term, permanent, or with any other contracts of employment? (2.1.C.6).

Workers employed by sub-contractors are not considered as employees of the mining corporations, but rather as employees of the sub-contractors. Therefore they are excluded from training development and advancement opportunities.

Training, development, promotion and advancement opportunities available to employees at Implats:

Adult basic education and training (ABET)

7,434 employees have attended ABET courses since 2000.

Impala Platinum (2005/06 FY):

- Full-time classes are available at Rustenburg operations and Refineries.
- Part-time classes are presented at Rustenburg operations.
- 23% of employees are estimated to be functionally literate and numerate at Rustenburg operations.
- 950 employees participated in ABET (FY2005: 772).
- 303 employees completed Introduction to Basic Computer course.
- Cost of ABET – R8.4 million.

This amounts to R27 723 per employee, per annum. The costs per person per annum for adult basic training is extremely high and to any observer must seem inflated.

Impala Platinum (2006/07 FY):

949 employees targeted for ABET at a cost of R12.3 million. (R12 961 per employee taught ABET). ***The amount spent per employee must raise concern. The fact that the group thus trained forms but a small number in terms of the total workforce at an operation with a rather high rate of illiteracy is also worrying.***

Impala Platinum (2007/08 FY):

800 employees targeted for ABET per annum. This will bring the proportion of workforce that is functionally literate and numerate to 26%. ***(This puts the Impala's mines well below the literacy and numeracy levels of the North West Province, and that claimed by the other corporations).***

Given the fact that the mines are able to reclaim training costs from the funds lodged with the Sector Education and Training Authorities (SETA) and the Department of Labour, the high costs claimed for ABET cannot but raise suspicion about the figures provided by Impala.

- ✓ An integrated workplace skills development plan for FY2007 has been submitted to the Mining Qualification Authority (MQA) for Impala Platinum (including Marula Platinum).
- ✓ Impala Platinum has been accredited by the MQA as a training provider.

Expenditure on skills development training amounted to 4.1% of the payroll i.e. R104 million (FY2005: R115 million).

The reduced spending is largely as a result of the regulated Mining Competent A or B training initiative having been concluded.

Generic career paths for all major disciplines are available to assist employees to follow a specific career. Succession planning and individual development plans are available for all HDSA employees identified in talent pools.

- ✓ Rustenburg operations: 146 HDSA employees are presently enrolled in accelerated programmes.
- ✓ Refineries: 15 HDSA employees enrolled in accelerated training.

Workplace skills plan skills priorities	HDSA beneficiaries received training for FY2006
Managers/Senior Officials	54

Workplace skills plan skills priorities	HDSA beneficiaries received training for FY2006
Professionals	72
Tech/ass professionals	393
Clerks	117
Service workers	64
Trades	2,295
Operators	2,468
Labourers	16,743
Engineering learners	100

Marula Platinum will be included into the Impala HRD quality training provider system in the 2006/07 FY.

Continue to submit comprehensive workplace skills plans in terms of the Mining Charter, Social and Labour Plan and company needs.

In 2007/08 FY finances for skills training will be targeted at 5% of the payroll. Impala will continue to offer accelerated training and development programmes within all major disciplines as defined in the SLP, Employment Equity (EE) Policy, succession needs and talent pool.

Workplace skills plan skill priorities	HDSA beneficiaries planned for FY2007:
Mgrs/senior officials	43
Professionals	58
Tech/ass professionals	315
Clerks	93
Service workers	15
Trades	1,836
Operators	1,874
Labourers	13,396
Engineering learners	181

Impala Platinum envisages expenditure of 5% per annum for skills training and development. All HDSA employees on succession plan and HDSA talent pool will have an individual development plan in terms of the group talent management policy. Impala will continue to train and develop HDSA talent as per work place skills plan for 2007 to 2009.

Bursaries and scholarships:

Impala Platinum:

Recipients of Bursaries	Number
HDSA	35
Non-designated	15
Employees' children	75
School enrichment scholarships for HDSAs	75
Da Vinci Women in Mining project: Women are presently doing an MSc in Innovation and Technology.	7

Once completed, the 7 women referred to in the table above will be placed on an accelerated development programme towards senior positions in the company.

Impala Platinum will in 2006/07 FY:

- ✓ Continue to provide 50 bursaries at any given time.
- ✓ 75 children of employees will receive scholarships and 108 school enrichment scholarships will be provided.
- ✓ Impala Platinum will continue to support accelerated training of women in mining.

Impala also developed systems for the mentoring of empowerment groups:

Mentorship programmes (internal) have been developed and implemented at the Rustenburg operations and refineries to mentor empowerment groups:

- ✓ 45 mentors appointed and trained.
- ✓ 93 protégés identified and trained.

Rustenburg operations and refineries have appointed Community Based Organisations (CBOs) to mentor and improve the impact of their LED projects for FY2006.

During the current financial year 618 protégés will be mentored. Preference will be given to candidates from the RBN.

R1.3 million has been approved to assist and mentor 100 institutions participating in Impala Platinum's LED projects.

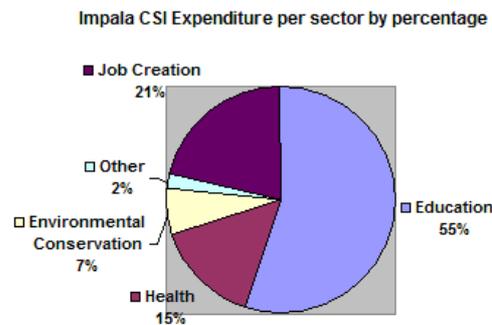
During the next financial year all employees on succession plans and HDSA talent pools will be mentored. Preference will be given to candidates from the RBN. Plans are contained in the Social and Labour Plan to expand the LED mentorship assistance programme to cater for more than 200 institutions per annum by FY2011.

Has the employment equity plan been published and has annual progress in meeting that plan been reported?

Matters of employment equity are published in the annual reports of the corporations under review as part of their sustainability or corporate social responsibility reports.

While the career pathing, empowerment and education and skills development are impressive they should be seen in the context of the impact of the mining industry on broad based employment in the communities surrounding the mines. General demographic information derived from STATS SA show that in places like Ledig and

Phokeng the impact of mining on levels of employment are minimal. We note in particular that the impact in these areas on the employment of women and the disabled by the mines is negligible.



Xstrata

Training and development programmes

Training and development are identified through performance reviews, which are conducted at least annually across the Group and from informal discussions between employees and their supervisors. In 2005, the average number of training days was 9.4 per employee.

Apprenticeships, tertiary education, bursaries and scholarships

In recognition of the importance of supporting the development of future employees for the mining industry and addressing the declining trend of students entering mining-related subjects at universities, Xstrata offers a significant number of trades apprenticeships, graduate traineeships, bursaries and scholarships across its global operations and provides further support to universities to support future recruitment.

Apprenticeships

- ✓ 149 trainee engineering and mining apprenticeships in South Africa;
- ✓ Learnerships offered to members of the broader South African community, including Mines Qualifications Authority training for apprentices.
- ✓ 50 students from local communities in South Africa participate in a one-year residential study programme provided by Xstrata to improve students' University entrance exam results. Candidates who receive a University pass are encouraged to proceed with tertiary education and apply for an Xstrata bursary. This programme has been implemented as an interim measure, to supplement education support for those children who will not benefit from the schools improvement programme.
- ✓ Graduate development programme at the Stellenbosch Business School, South Africa.

Scholarships and bursaries

- ✓ Over 100 bursaries provided for HDSA students in South Africa and 74 work experience placements and on-the-ground training to bursars during the vacation period;
- ✓ Assistance provided directly to the Universities of Cape Town and Witwatersrand to assist HDSA students studying mining and related disciplines;
- ✓ To further support tertiary education, Xstrata funded a university chair in 2005 – ZAR1.7 million for a Chair of Geology at Rhodes University in South Africa.

The Xstrata report, being a global report, lacks the detail of the Anglo-platinum and Implats reports with regard to education, training and advancement opportunities for employees.

ANGLO PLATINUM

ABET

Anglo Platinum's ABET programme is more far reaching and effective than that of Implats. The functional literacy level is, as a consequence, also far higher.

Literacy and numeracy: Offer all employees in-house training to ABET 4, in their spare time.	18 524 employees have been offered ABET, 110 full-time ABET trainers employed. 25% of Anglo Platinum's workforce is still functionally illiterate.	Offer all employees in-house training to ABET 4, in their spare time.
-----------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------

Young Professionals

In 2005 the corporation spent R19,9 million on its bursary scheme:

- ✓ 80,2% of new bursars in 2006 are HDSAs
- ✓ 34% of the bursars who started in 2006 came from communities within a 50km radius of the group's operations.

Management and leadership development

The group's supervisory development programme has reached more than 2000 supervisors.

Other interventions include:

- ✓ The junior supervisors programme targeting junior management, and
- ✓ The management development programme, catering for middle management development.

The Group also offers:

- ✓ Technical skills training;
- ✓ Talent management;
- ✓ Career pathing, and
- ✓ Mentoring.

2.4.B.10 Do the mining corporations under review provide on-going, free and compensated education and training for workers?

Yes. Given the nature of mine work, productivity, health and safety is very much dependant on education and training.

4. Do the mining corporations report publicly on the frequency of training and education of workers on their rights and responsibilities in line with best practice and industry developments? Do they undertake such training that is free and compensated? (2.1.B.7)

Yes, they do in terms of the balanced scorecard, social plan and their annual sustainability/social responsibility reports.

5. Do the mining corporations provide adequate technical training, which contributes to the advancement of all workers, especially women and the disabled? (2.1.a.B.)

A qualified yes. The mines do provide detailed technical training for all workers, including women. However, none of the reports reviewed say anything about the technical training of disabled employees. In fact, none of the reports say anything about policy regarding the employment of disabled people let alone about training. The corporations under review do say a lot about strategies to employ women and about realising a target of 10% female employees by 2009 as required by the Mining Charter. However the targets set are very low.

6. Do the mining corporations provide training for their directors and employees regarding ethical issues, corporate social responsibility issues and codes of conduct? (2.6.C.1.)

Anglo Platinum

Anglo Platinum has a clear code of conduct, which deals with:

- ✓ Discrimination in the workplace
- ✓ Freedom of association and collective bargaining
- ✓ Child labour, and forced and compulsory labour

The code of conduct is underwritten by a set of disciplinary practices including,

- ✓ Appeal procedure
- ✓ Grievance procedure

In addition it has developed policies around:

- ✓ Security practises
- ✓ Indigenous rights.

In none of their reports do they mention training for directors and employees around these issues.

Implats

They have definite training targets set for managers as well as workers in general, with specific technical training focussed on a small group of women. However nothing is said about training regarding ethical issues, corporate social responsibility and codes of conduct.

Xstrata

Xstrata is perhaps the only corporate under review for which an unqualified yes may be given to the above question. Xstrata reports that it has comprehensive programmes and processes in place to ensure a work environment and terms and conditions of service, which are free from discrimination.

Clear expectations are set for management, performance is monitored against these and action is taken in response to any non-conformance. Xstrata makes ethical and social responsibility issues part of the contractual obligations of employees.

All employees receive Xstrata's Statement of Business Principles in their first language and these principles form an integral part of its induction process for new employees and contractors. Discrimination is not tolerated in the workplace. Active measures are taken to promote the implementation of this policy, and submission of an annual report to the Equal Opportunity Commission.

According to Xstrata, all human resource policies and all decisions affecting employment and career development are based on the principle of individual merit. ***Policies such as the Fair Treatment at Work Policy, Equal Employment Opportunity Policy, Sexual Harassment Policy, Data Protection and Privacy Policy, Risk Management Policy and Fraud Control Policy are reinforced through contracts of employment, inductions, toolbox talks and ongoing refresher training.***

Xstrata has a grievance policy and procedure in place, which all employees can access if they believe that they have been unfairly discriminated against. This process is managed at the commodity (copper, coal, alloys) business and site level. Xstrata established a toll-free, confidential ethics line.

Compliance with the Business Principles is a fundamental part of any assessment of employees' performance and non-compliance with any element of Business Principles automatically results in disciplinary proceedings. Xstrata has a number of systems and forums in place that encourages employee feedback and commodity businesses or divisions undertake ad hoc surveys. ***Daily, weekly, monthly and quarterly management briefings occur at all levels of the business and are the main mechanisms by which employee feedback is elicited. Xstrata also uses notice boards, newsletters, video messages and email notices to keep employees and contractors up***

to date with important initiatives across the Group. Employee feedback is encouraged through a range of processes, including the performance appraisal system and monthly meetings between operational managers and employee representatives.

Xstrata's support for the Universal Declaration of Human Rights and the International Labour Organisation's Declaration on Fundamental Principles and Rights at Work is set out in the Business Principles. Xstrata upholds the elimination of all forms of forced and compulsory labour and excludes the use of child labour. All sites report the age of their youngest employees and are audited through the internal audit risk management programme.

7. Do the mining corporations under review have a policy of employing people with disabilities and of providing the resources and facilities, which enable them to achieve progression in employment in the company and to receive training and promotional opportunities without discrimination? (2.3.C.2)

No. There is absolutely no reference to any policy concerning disabled people in any of the corporate social responsibility reports. Disabled people are not mentioned as part of the definition of HDSAs given by the corporations under review.

8. Do the mining corporations work with their suppliers to put in place on-going education and training programmes for workers and management on workers' rights and how to achieve and sustain compliance with labour, social and environmental standards? (2.4.C.5)

No, not with regard to workers' rights or compliance with labour and social standards. Anglo Platinum requires "suppliers to adhere to all applicable environmental legislation. Supply chain also plays an active role in ensuring that products and services supplied conform to responsible environmental principles. Anglo Platinum is embarking on a programme with its supplier to ensure that all fuel dispensing and storage facilities at the operations are properly managed and maintained." (Anglo Platinum, 2005:68).

9. Do the mining corporations have an effective internal compliance process of training, on-site inspections and audits of suppliers and vendors? (2.4.B.4)

Yes, there is a degree of training for emerging HDSA suppliers by Anglo Platinum and Impala. Thus Anglo Platinum gave training to 52 black-owned BEE companies within and outside of its supply value chain in areas ranging from management to technical to improve their capacity to deliver good-quality product and service. 16 of these companies were awarded either new or additional contracts by Anglo Platinum.

Issues arising from Section 3

Strengths	Weaknesses	Recommendations
	Senior Management at production sites is local, but not predominately HDSA. Operations are still very much dominated by white males.	
While the career pathing, empowerment and education and skills development are impressive they should be seen in the context of the impact of the mining industry on broad based employment in the communities surrounding the mines.	General demographic information derived from STATS SA show that in places like Ledig and Phokeng the impact of mining on levels of employment are minimal. We note in particular that the impact in these areas on the employment of women and the disabled by the mines is negligible. Non-existent in the case of the disabled.	The target women will make up 10% of employees in the industry by 2009 is rather low. Impala proudly publishes the fact that it is currently training 7 women as part of the Da Vinci women in mining project speaks for itself. These targets should be revised.
Junior Management shows a far greater degree of compliance with the 40% target set for HDSA empowerment by 2009	Top management and senior management at head office shows some progress towards HDSA empowerment, however the actual numbers for the 40% compliance target set by the Charter are concentrated at the junior management levels.	The 40% target for HDSAs in management by 2009 is inflated by the appointment of junior managers from the HDSA bracket. The target is too low and should be broken down into various categories with a target set for each category.
Only at Xstrata are policies such as the Fair Treatment at Work Policy, Equal Employment Opportunity Policy, Sexual Harassment Policy, Data Protection and Privacy Policy, Risk Management Policy and Fraud Control Policy reinforced through contracts of employment, inductions, toolbox talks and ongoing refresher training.	Anglo Platinum and Impala have clear ethics policies and disciplinary procedures, however there is no publicly stated induction or training policies.	Anglo Platinum and Impala would do well to follow Exstrata's example.
Xstrata has a number of systems and forums in place that encourages employee feedback and commodity businesses or divisions undertake ad hoc surveys. Anglo has an Employee Relationship Forum (ERP) signed by all recognised unions. It also has a central partnership forum (CPF) and operating unit partnership forums (OUPFs).	Anglo-Platinum and Implats could adopt additional measures such as surveys that would measure the effectiveness of their interventions.	Anglo Platinum and Implats would do well to follow Exstrata's example.
All the corporations provide ABET training for workers	Implats' Impala operation spends a huge amount of money and resources on relatively small target groups with very little impact on functional illiteracy. Given the importance of literacy for health and safety in the mining environment this is worrying.	Impala should attempt to learn from peer operations of the other corporations to develop a more effective ABET programme.

Section 4: Wages and salaries

Promotion of sustainable livelihoods

1. Do the mining corporations under review pay sustainable living wages, which enable employees to meet the basic needs of themselves and their families, as well as investing in the on-going sustainability of local communities through the use of discretionary income?
(2.1.P.7)

Anglo Platinum Workforce at South African Operations	No	%
Total Own Employees (South African Operations)	43 416	58,3%
Total Contracting Staff	31 082	41,7%
Total	74 498	100%

Source: Sustainable Development Report, 2005:74

2005	On mine Rm	Smelting Rm	Treatment and refining Rm	Total
Labour	4604,8	231,3	317,2	5153.3

Anglo Platinum complies with the conventions and standards of the International Labour Organisation, with that of the International Declaration of Human Rights and with labour legislation, including minimum wage legislation in South Africa. However, mines and communities take issue with the fact that 41,7% of people working on Anglo Platinum's operations is employed by sub-contractors. There is no indication that these sub-contractors adhere to any international, national or even corporate codes of ethics. It is unclear what their policies are with regard to wages, housing, health, training, etc.

Many of these sub-contracting workers continue, according to reports, to reside in single men's hostels. Many are still migrant workers, thus mining corporations can use the system of subcontracting as a means to meet their targets in the Mining Charter with regard to migrant labour. Many costs, including that of housing, health, training, etc. can be shifted to sub-contractors and the headache of personnel management and labour negotiations as well. Sub-contractors in turn recoup such costs from the workers themselves who in turn become a burden on the state-provided health clinics, housing and social welfare systems thus impacting negatively on the sustainability of local communities.

All the corporations under review do invest in community health care, education and training, infrastructure development etc. thereby contributing to community sustainability. However, little is said in corporate literature about the costs to communities of mining operations:

- ✓ The costs of sexually transmitted disease (STDs) as a result of the sexual interaction between mineworkers and women in communities.
- ✓ The cost of the rampant HIV and AIDS pandemic in communities surrounding mining operations.
- ✓ The cost of agricultural land lost to mine waste.
- ✓ The cost of increasing respiratory ailments to communities as a result of a deterioration in the air quality as a result of dust from waste facilities and emissions from smelters.
- ✓ The cost of acid mine leakage into the water supply.
- ✓ The impact of mining on underground water resources to communities, etc.

There are unintended negative consequences to some of the policies on housing and migrant labour pursued by these corporations in that they inadvertently contribute to the growth of informal settlements and the spread of HIV and Aids, STDs and alcoholism in communities.

The situation with regard to the other two corporations is much the same.

2. Do the mining corporations under review ensure that, as a minimum, all employees are paid a wage, which, at least, provides sufficient purchasing power to enable employees to meet the basic needs of themselves and their families? (2.1.C.12)

In the case of the remaining migrant workers still living in hostels, a worker might have two families, one in the labour-sending area and one residing in the nearest informal settlement or township. Where the migrant worker might be taking advantage of the living out allowance he may be living with his urban family at the cost of the family in the labour-sending area.

The worker still residing in the hostel might be saving on costs such as transport, food, fuel for energy, water, rent, etc. which are all costs which workers using the living out allowance will have to pay. The situation therefore varies from worker to worker.

3. Do the mining corporations provide equal pay for equal value? (2.1.P.8)

Through the Chamber of Mines and the dominance of the National Union of Mineworkers, workers on mines generally receive equal pay for equal value. Of course, if workers were paid the value of the minerals they produced there would be no profits realised.

4. Do the mining companies use an established process to calculate a sustainable living wage? And is this process to determine a sustainable living wage used in each of the geographic areas where workers live? (2.1.C.13)

No, minimum wages are determined by legislation and through negotiations with unions. Wages are therefore standardised across all operations in South Africa.

5. Are the executive compensation and bonus packages offered by the mining corporations under review tied to financial, social and environmental performance and are they in alignment with community expectations of fair and reasonable compensation? (2.7.P.4)

Communities in the mining areas have never been afforded an opportunity to consider the executive compensation and bonus packages offered to senior managers in the industry. The remuneration policies of the corporations under review are therefore not influenced or determined by community expectations.

Anglo Platinum's Remuneration Policy is clearly stated:

- ✓ Total rewards are set at levels that are competitive within the relevant market;
- ✓ Incentive-based rewards are earned through the achievement of demanding performance conditions consistent with shareholder interests over the short, medium and long term;
- ✓ Incentive plans, performance measures and targets are structured to operate effectively throughout the business cycle; and,
- ✓ The design of long-term incentives is prudent and does not expose shareholders to unreasonable financial risk (Amplats, 2005:120).

Xstrata's Remuneration Policy as stated in its annual report is:

Xstrata's remuneration policy is designed to attract, retain and motivate the highly talented individuals needed to deliver the business strategy and to maximise shareholder wealth creation.

The policy for 2005 and, so far as practicable, for subsequent years, will be framed around the following principles for the Executive Committee:

- ✓ Remuneration arrangements will be designed to support the business strategy and to align with the interests of Xstrata's shareholders;
- ✓ Total reward levels will be set at appropriate levels to reflect the competitive global market in which Xstrata operates with the intention of positioning within the top quartile for outstanding performance when measured against a peer group of global mining companies and the FTSE100;

- ✓ A high proportion of the remuneration should be “at risk” with performance related remuneration making up at least 50% of the total potential remuneration for Executive Committee members; and
- ✓ Performance-related payments will be subject to the satisfaction of demanding and stretching performance targets over the short and long-term.
- ✓ These performance targets will be set in the context of the prospects of the Group, the prevailing economic environment in which it operates, and the relative performance of comparator companies.

The 2006 Annual report of Implats does not provide information about its remuneration policy, but does indicate the membership of the committee.

6. Do the mining corporations offer stock options to a broad cross-section of employees and do they calculate stock options as an expense? (2.7.B.4)

No, they don't, although the NUM at a national level has invested in the mining industry.

Issues arising from Section 4

Strengths	Weaknesses	Recommendations
All three mining corporations invest in health, social welfare, education and infrastructure of surrounding communities.	Some of the labour and housing policies of the corporations lead to the development and growth of informal settlements	Review of labour and housing policies
All three mining corporations pay wages in accordance with the legislative environment and in terms of negotiated agreements.	The legislative environment and negotiated agreements often ignore some of the individual complexities that face mineworkers in an era of transition.	The complexities confronting mineworkers at a time when housing and labour policies are changing must be taken into consideration.
All three mining companies do tie executive compensation to performance.	Performance is determined by market and shareholder interests rather than to community or environmental concerns	Recommend that community and environmental concerns be solicited and adopted.
All three mining companies have a BEE approach.	All three companies lack a broad based BEE approach, as stock options are only available to directors.	Stock options should be extended to a larger cross section of the workforce

Section 5: Employment conditions and human rights

1. **Are the three mining corporations under review guided by the various ILO standards as a minimum governing their employment practices and industrial relations? This standard includes genuine respect for employees' rights to freedom of association, labour organisation, free collective bargaining, non-discrimination in employment and a safe and healthy working environment provided for all employees. (2.1.P.1)**

Yes, publicly and in principle they do and it is so stated in all their annual reports. However, mining, by its very nature is an unsafe occupation. Fatalities and accidents although consistently declining over the last decade in the industry are still unacceptably high.

2. **Are the employees of the mining corporations under review free to organise and join workers' organisations without discrimination or interference and to engage freely in collective negotiations to regulate terms and conditions of employment? Is no employee discriminated against for engaging in union organising and collective bargaining activities and other worker committees? (2.1.C.10)**

All the corporations comply with the legislative environment regarding labour relations. Both Anglo Platinum and Implats had a [turbulent period](#) during the 1990s when labour unrest resulted from the emergence of competing organisations such as “Five Madoda” and “Workers Mouthpeace Union” who sought the physical destruction of the National Union of Mineworkers. Some commentators suggested local operational management complicity at the time, but this was never tested in court.

All the corporations now have strict codes of conduct regulating worker rights.

3. **Do the three mining corporations adhere to principles set out in the ILO Conventions on freedom of association and free collective bargaining? (2.1.B.2)**

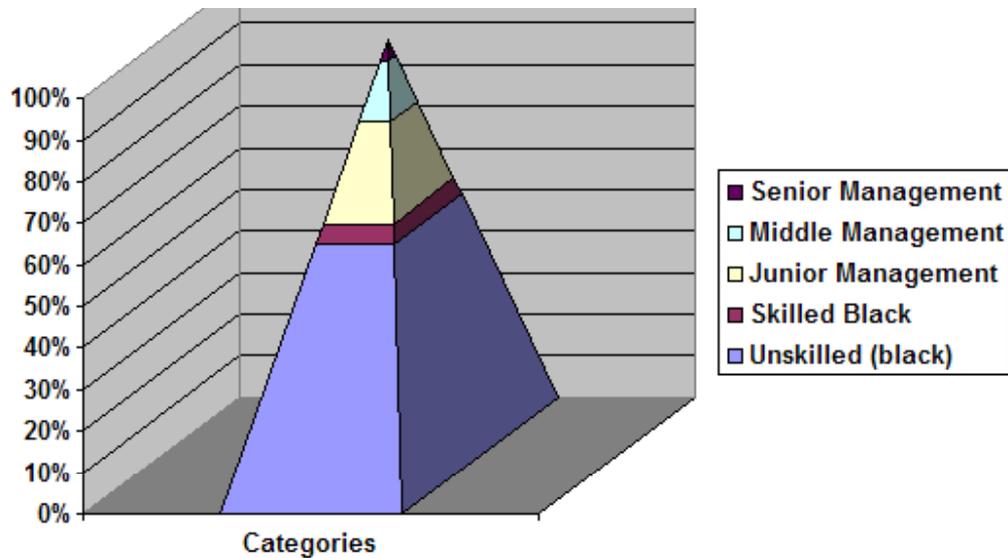
Yes they do.

4. **Do the three mining corporations discriminate on the basis of gender, racial/ethnic origin, social or ethnic origin, culture, religion, age, disability, sexual orientation, nationality, citizenship or political opinion? (2.1.P.2)**

And,

5. **Do they ensure that no person is subject to discrimination on employment, including recruitment, hiring, remuneration, benefits, advancement, discipline, termination, or**

Representation of Black South Africans in the Employment Structure of Implats



retirement, on the basis of gender, racial/ethnic origin, social or ethnic origin, culture, religion, age, disability, sexual orientation, nationality or political opinion? (2.1.C.1)

The mines come from a long legacy of racial, gender and ethnic discrimination. Historically mine managers claimed that black African workers preferred the migrant labour system, as it was a modern replacement for the age-regiments of traditional society and a necessary step to manhood.

Black African workers were also divided ethnically, thus it was posited that Zulus made good security guards, Shonas and Ndebele's from Zimbabwe made good machine operators, Malawians good clerks, Sothos good menial workers etc. It was held that South Africans were averse to mine work and that this justified the migrant labour system.

The colour bar ensured that whites filled all management and skilled labour positions.

Given this legacy it is not surprising that numerically whites still outstrip blacks in management and skilled labour positions.

Naturally a pyramid reflecting white labour in the mines would be an inverse pyramid with the bulk of white employees concentrated at the management and skilled labour level, with no unskilled labourers being white. The above pyramid can be considered representative of the industry in general.

As at present women still make up less than 10% of the workforce. There are no figures for disabled people. There is also no commitment on the part of the industry in general or corporations reviewed here in particular, to any employment targets for disabled people.

While all the mines are committed to a policy of non-discrimination they still have a mountain to climb as far as racial and gender equity is concerned. The one category of people they have simply forgotten is the disabled people of South Africa. Hearing loss is a major problem in the mining industry, and the industry generates many other disabilities, particularly paraplegics, yet there is no reference to the affirmation of disabled people in mining corporate literature.

6. Do mining corporations adhere to the ILO conventions regarding basic employment practices, equality of opportunity, and the elimination of all forms of discrimination? (2.1.B.1.)

Yes, they do.

7. Do the mining corporations under review ensure that its labour force and managerial employees are proportionally representative of the communities in which they operate? (2.1.P.5.)

And,

8. Do these corporations actively recruit and employ for all positions at all levels, including management, from the local population? (2.1.C.5)

It is a qualified yes. If local population refers to the population of South Africa, then it is yes, as they comply fully with the procedural and administrative obligations of the Employment Equity Act. These corporations are all attempting to overcome the historical legacy of the mining industry by employing a diverse workforce inclusive of black and female workers. However, their policy documents are silent on the issue of disabled people. The target that they have set themselves for women is too low at 10% of total labour force by 2010.

The pyramid for Impala above shows that the unskilled and semi-skilled labour are still predominantly black while skilled, junior management, middle management and senior management positions are still predominantly white.

Issues arising from Section 5

Strengths	Weaknesses	Recommendations
The corporations do agree with and attempt to comply with ILO	Insufficient research funds spent on workplace safety research.	Mines need to spend more time and resources on workplace safety.

standards.	Preventive measures to reduce fatalities on mines as a result of fall of ground were not adequate. Corrective measures to ensure predetermined safety objectives were not enforced or coordinated adequately. Investigations into accidents focussed mainly on determining blame rather than on identifying causes and instituting measures to prevent the occurrence of accidents. Safety information to ensure the implementation of preventive safety measures was not provided effectively.	
Mine fatalities have steadily declined over the past decade	It is disturbing to note that Xstrata's South African operations have more accidents and fatalities than its operations elsewhere in the world. It is disturbing to note that Anglo Platinum registered an average of 2 deaths per month over the 2005 fy period.	Make safety benchmarks and employment conditions benchmarks uniform throughout the world.
The mines are trying to overcome their legacy of racial, gender discrimination in particular and that of ethnic stereotyping.	The mines are still white male dominated. The targets set in the Charter are too low and too slow. MINE POLICY IS SILENT ON DISABLED PEOPLE!	Review and change the policy documents and targets. Regulate for the employment of disabled people in the mining industry.

Section 6: Gender

1. **Do the mining corporations under review adhere to the relevant codes of the World Health Organisation and the relevant ILO recommendations on health and safety, on the health of young persons, the health of women, the use of chemicals, occupational diseases, compensation for occupational injury and other related issues? (1.2.B.5)**

Theoretically and publicly they do. However, the nature of mining operations is such that workers frequently would come into contact with harmful substances. Mineworkers work with heavy, often moving equipment and machines that give off toxic fumes and can cause injury as a result of moving parts. It is also very possible that a worker could suffer from a sudden or severe occupational injury. There are also many health issues related to mining that can severely affect mineworkers in the long term. For example mineworkers come into contact with dust containing all kinds of substances such as silica, which can cause silicosis. Workers work in cramped conditions, which can cause muscular and skeletal problems. As the industry begins to employ more and more women special attention will have to be paid to their health needs. In late October 2006 NUM declared a dispute with Anglo Platinum over gender rights for female employees exactly because it claimed that the corporation is not making adequate provision for women mineworkers.

2. **Do the mining corporations under review make decisions in accordance with the Universal Declaration of Human Rights, the Convention on the Elimination of All Forms of Discrimination Against Women and the International Convention of the Elimination of All Forms of Racial Discrimination? (1.2.B.1)**

Yes they do. However the corporations under review are faced with an immense task given the discriminatory legacies of the industry.

3. **Do the mining corporations have a policy, which prohibits health testing as a condition of employment including pregnancy testing? (2.1.C.4)**

All the mines have health tests for prospective employees, however pregnancy testing is not included. It should be noted though that the NUM dispute mentioned above relates to labour practices at Anglo Platinum which NUM claims discriminates against pregnant women.

4. **Do the mining corporations support and provide the essential infrastructure of childcare, elder care, and community services which allow workers, especially women who have traditionally done this work as unpaid labour, to participate as employees? (2.1.C.9.)**

No they don't.

Issues arising from Section 6

Strengths	Weaknesses	Recommendations
Mines have begun employing women	The target of 10% by 2009 is too low.	The target must be adjusted.
The mines adhere to all the relevant international conventions	The mining environment is a very unsafe environment in the immediate as well as medium and long-term senses.	Mines must continually seek to improve safety in the work environment.
	The mines do health testing as a condition of employment	The mines must ensure that the health testing is not discriminatory against women, people living with HIV and Aids or the disabled.
	The mines do not have the necessary support infrastructure to lessen the domestic load of women	The mines must develop this infrastructure.

Section 7: Health and Safety

1. Do the mining corporations provide a working environment that supports health and wellness? (2.2.P.1.)

The mining corporations under review claim to attempt to provide a working environment that supports health and wellness. However, the nature of mining operations is such that workers frequently would come into contact with harmful substances. Mineworkers work with heavy, often moving equipment and machines that give off toxic fumes and can cause injury as a result of moving parts. It is also very possible that a worker could suffer from a sudden or severe occupational injury. There are also many health issues related to mining that can severely affect mineworkers in the long term. For example, mineworkers come into contact with dust containing all kinds of substances such as silica, which can cause silicosis. Workers work in cramped conditions, which can cause muscular and skeletal problems.

Although the trends are towards a decline in fatalities and injuries, a figure of 2 employees dying per month at Amplats operations in 2005 is still unacceptable. In 1999 an audit by the mine health and safety inspectorate found:

- ✓ Although occupational health was the highest risk area in the mining industry, only a small portion of research funds were spent on this;
- ✓ The total treatment of tuberculosis (TB) was about R210m a year. The incidence of TB was exacerbated by the fact that between 20% and 30% of miners are HIV positive. Furthermore, costs related to the treatment of cancer patients from mines amounted to about R220m a year;
- ✓ Preventive measures to reduce fatalities on mines as a result of fall of ground were not adequate;
- ✓ Corrective measures to ensure predetermined safety objectives were not enforced or coordinated adequately. Investigations into accidents focussed mainly on determining blame rather than on identifying causes and instituting measures to prevent the occurrence of accidents; and

Safety information to ensure the implementation of preventive safety measures was not provided effectively (Institute of Race Relations, 1999:313).

For every single ton of gold ever mined in South Africa, one mineworker has died in a work related accident – a total of 80 000 workers. “More than a million more have been disabled than discarded in rural areas on a pittance paid as ‘compensation’.” (Pillay in Wilmot (ed), 1998:48). South African mines in general, and the gold mines in particular, have a “butcher-shop” tag as a result of high accident and fatality levels in the workplace. (Campbell in Creamer (ed.), 2001: 23).

Mineworkers are faced with the following workplace risks:

- Injury or death from rock-falls (Lace in Creamer, 2001:12).
- Injury or death from machinery and equipment
- Injury or death from underground methane gas explosions
- Injury or death resulting from the use of explosives
- Drowning from underground flooding or mud slides
- Illness from the inhalation of dust leading to silicosis, phthisis or T.B.
- Exhaustion as a result of long shifts and heavy manual work
- Stress

Common causes of accidents in Platinum Mines, January 2005 compared to January 2006 (Source DME circular 02/2006)

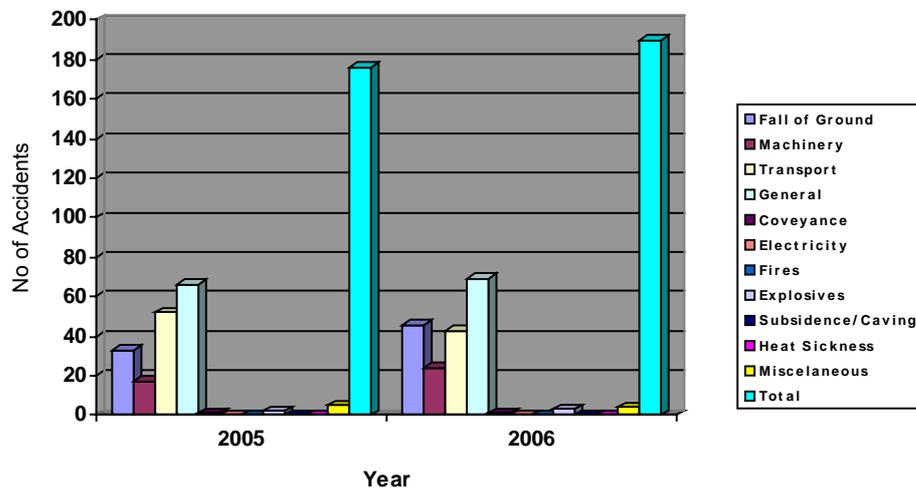


Figure 18: Common causes of accidents in platinum mines: January 2005 compared to January 2006 Source DME

The Department of Minerals and Energy's *Mine Health and Safety Report* for the North West Region, Circular 02/2006 provides the following report for 2005/01/01-2005/02/28 vs. 2006/01/01 – 2006/02/28 periods for mines in Rustenburg (-K- Region):

Classification	Description	Total Injured		Total Killed		Total Accidents	
		2005	2006	2005	2006	2005	2006
01	Fall of Ground	32	47	1	0	33	46
02	Machinery	17	23	0	1	17	24
03	Transport and Mining	51	40	3	3	52	43
04	General	77	74	0	0	66	69
05	Conveyance accidents (shafts)	1	1	0	0	1	1
06	Electricity	0	0	0	0	0	0
07	Fires	0	0	0	0	0	0

Classification	Description	Total Injured	Total Injured	Total Killed	Total Killed	Total Accidents	Total Accidents
08	Explosives	3	2	0	4	2	3
09	Subsidence/caving	0	0	0	0	0	0
12	Heat sickness	0	0	0	0	0	0
13	Miscellaneous (specify)	5	4	0	0	5	4
	Total	186	191	4	8	176	190

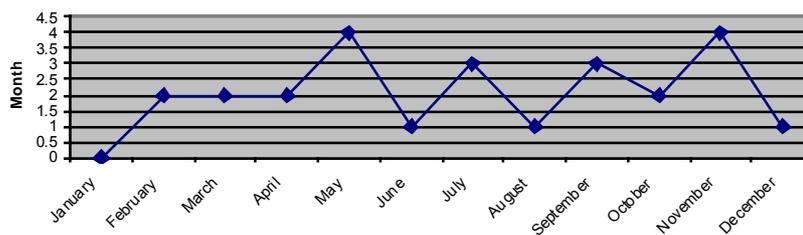
Common causes of accidents in platinum mines: January 2005 compared to January 2006 (Source: DME)

The first month of 2006 shows a significant increase in total injuries as compared to the first month of 2005. The total number injured increased from 186 to 191, while the total number of workers killed increased from 4 to 8 (100%), and the total number of accidents increased from 176 in the first month of 2005, to 190 in the first month of 2006.

The biggest causes of accidents on the platinum mines are related to falls of ground, machinery, transport and mining in general. It would be necessary to compare month on month accidents levels for the rest of 2006 to determine if there is an upward trend. If such a growing trend is established it is possible that the rapidly increasing demand for platinum as reflected in the rapidly rising price for the metal in international markets is causing mine operators to increase production. Rapid demand increases, outstripping increases in production, which in turn outstrips growth in production capacity could lead to productivity demands that would undermine mine safety. The NUM frequently complains that the performance bonus system in the mines endangers workers as they chase performance targets.

There are also persistent patterns, which are disturbing as shown in the following graph:

Spread of Accidents at Anglo Platinum, 2005fy



No of Accidents. (Source: DME).

Although the above graph represents the situation at Anglo Platinum, industry safety experts agree that it represents an industry-wide pattern. The highest rates of accidents seem to occur immediately prior to or during the period of high public holidays during April and May (Easter, Freedom Day and Workers Day) and just prior to the Christmas holiday period. There are two possible influences on this trend, the first might be that workers are distracted by the prospects of a break and therefore lose their safety focus, or the production tempo is raised by management to offset the loss in production to

the two holiday periods. Xstrata's global safety record is worst in South Africa, but it fails to provide a month-to-month breakdown of accidents. Implats reported 7 fatalities at all its operations in 2005 FY, all of them at its Rustenburg operations, most resulting from fall of ground. Impala also fails to provide a month-to-month breakdown. An expert in mine safety, Dr Carel Marx, in an informal interview in October 2006 confirmed that accidents increased in the run up to April and again in the period preceding and during the December holiday period. He mentioned some additional possible contributory factors including the fact that many senior and middle managers take leave during these periods and mine work is supervised by acting personnel and that workers attempt to work faster so as to realise a monthly bonus to have extra income to take home during the holiday period.

2. Do the mining companies under review affirm that workers have a right to a workplace that is free of toxic substances and all forms of health hazards, including second hand smoke? (2.2.P.2.)

Yes, they do. Apart from the second hand smoke, however, there is really very little that mining corporations can do to make the underground work environment free from toxic substances and all forms of health hazards. Both platinum and gold mines experience frequent underground seismic activities that lead to the fall of ground especially in areas where there are lots of faults. In the area of Klerksdorp and Stilfontein, for example, workers can experience as many as 100 seismic events in a working day. Mining operations do not only pose a serious health hazard and toxic risk to employees but also to surrounding communities. In 1974 a tailings dam in Bafokeng belonging to Impala broke causing death and destruction and polluting surface water. Insurance companies are refusing to insure tailings and slimes dams belonging to Implats.

3. Do the mining companies under review subscribe to the principle that every worker has the right of access to health care, including accessible and affordable medicines? (2.2.P.3.)

Yes they do, including anti-retroviral treatment. The mines have extensive health care facilities. However, many workers, especially non-English speaking migrants struggle to communicate with western doctors. Many workers also prefer the services of traditional healers. Unfortunately workers employed by subcontractors do not have access to the same health care provision as those directly working for the mining corporation.

4. Do the mining corporations under review adopt specific principles to ensure that the workplace is free from toxic substances and all kinds of risks; is properly ventilated and appropriate, free, protective equipment and hygienic bathrooms and changing rooms for workers, especially for women and young workers are provided? (2.2.C.1.)

In the buildings on the surface this is possible and all the corporations under review do attempt to do so. Risks on the surface include machine related injuries and harm to hearing resulting from high levels of noise. Underground it is very difficult to provide all the necessary amenities or to ensure a toxic free, hazard free environment.

5. **Do the mining corporations under review ensure participation by workers from all levels of employment, in education, examination and the monitoring process on issues of occupational health and safety? (2.2.C.2.)**

Yes, they do.

6. **Do the mining companies under review ensure that workers can elect representatives through democratic processes to site Health and Safety Committees? That they have rights to have regular monitoring of the workplace, to have full access to all the information related to occupational health and safety issues, and that they will not be penalised when they assume these duties? (2.2.B.3.)**

The mines have health and safety departments with employed staff who specialise in health and safety issues. Safety information in the form of billboards and posters are displayed prominently everywhere. There is no reference in any of their annual reports of elected health and safety committees.

7. **Do the mining companies provide adequate medical coverage for their employees and their dependants, including necessary essential medicines, including ARVs? (2.2.C.4.)**

Where workers are living with their families, the mining companies do. Where workers' families are in distant labour-sending areas they do not do so. The mines have ARV programmes for all employees and comprehensive health care packages. Workers are also entitled to free VCT and ARVs. The mines also support community health care programmes in surrounding communities.

Many workers do not, however, go for voluntary testing and many prefer to consult traditional healers when they are ill.

What follows is a more detailed overview of the response by the industry to the pandemic. According to Banati, Low-Beer et al mortality due to HIV for 1996 is localised in the central parts of South Africa, mostly in the Northwest/Gauteng/Free State and areas showing differential increases can be seen in parts of the Northern Province. Evidence suggests that these rates are correlated with active mining areas. This is supported by a review of mortality by occupation

code. Deaths coded in 1996 as due to AIDS or the indicator conditions tuberculosis and pneumonia showed a much greater rate among those in the mining professions than in any other profession at the provincial level. This pattern is born out by data showing mortality rates in the mining industry ranging between 70 and 198 deaths per 10, 000, while for other industries it is only 20 deaths per 10,000 (Banati, Low-Beer et al, 2004:1).

Mineworkers infected with HIV and AIDS generally have low tolerances to heat exposure, and an increasing number of heat-exhaustion cases are being reported as well as longer recovery times after accidents. According to the NUM HIV and AIDS almost feeds off the conditions associated with underground mining, “from the level of working conditions to the socio-economic conditions associated with nutrition as well as living and lifestyle conditions” (van Vuuren, in Creamer (ed.) March 22- 28, 2002: 5). The NUM also points out that mineworkers are exposed to dust and are at risk of developing silicosis, and that the interaction between HIV and AIDS, silica and tuberculosis needs to be investigated (ibid.p.5).

In December 2004 the South Africa Institute of Chartered Accountants issued a draft document for public discussion on *Corporate Governance and HIV/Aids* in an effort to contribute to the debate on corporate disclosure of the impact of HIV and Aids on organisations in South Africa. This debate followed the “King Report on Corporate Governance for South Africa”, 2002, which recognised the challenges posed by HIV/AIDS for corporations and recommended that:

“The board of directors should therefore:

- *Ensure that it understands the social and economic impact that HIV/AIDS will have on business activities;*
- *Adopt an appropriate strategy, plan and policies to address and manage the potential impact of HIV/AIDS on business activities;*
- *Regularly monitor and measure performance using established indicators; and*
- *Report on all of the above to stakeholders on a regular basis.”* (December 2004:1).

Companies and business organisations are therefore obliged to: a) assess the HIV and AIDS risks that their organisations face; b) comply with the legal obligations implied by the risk of HIV and AIDS and to c) disclose the extent of the HIV and AIDS risk to their organisations. Clearly corporates are further obliged to manage HIV and AIDS as it affects their employees. King defines risk management as “... *the identification and evaluation of actual and potential risk areas as they pertain to the company as a total entity followed by a process of either termination, transfer, acceptance (tolerance) or mitigation of each risk. The risk management process entails the planning, arranging and controlling of activities and resources to minimise the impact of all*

risks to levels that can be tolerated by shareholders and other stakeholders whom the board has identified as relevant to the business of the company” (ibid.p.2).

There is an increasing awareness in the research community of the links between mines, migrant labour and levels of HIV and AIDS infection in surrounding communities and even in distant communities supplying labour and services to mines and mineworkers.

In an interview with a medical doctor working at the world famous Tapologo Aids Hospice serving informal settlements such as Freedom Park it was claimed that the HIV infection rate at these informal settlements are currently between 50% and 57%. This is based on detailed records kept by the hospice on a month-to-month basis of pregnant women; the tests include CD4 count and viral load tests. The hospice tests 3000 patients per month. This source claims that the high rate of infection is as a result of the interaction between mineworkers and sex workers in the surrounding informal settlements. The women form part of the leisure activities of the migrant workers who frequent the shebeens in the settlements, drink and have sexual intercourse with the women as part of their recreation. While the mines claim a reduction in migrant workers among their labour force, the system of sub-contracting has resulted in two unforeseen consequences, firstly, many sub-contractors continue to employ foreign workers, so these workers no longer appear in the records of the mine’s direct labour force, and secondly the contract workers do not have access to the health facilities and anti-retroviral programmes of the mines. HIV positive contract workers do not appear on the statistical records of the mine, and they do not present a burden on the medical expenses of the corporation.

Why is the HIV infection rate at mines so much lower than in surrounding communities?

According to the response to a questionnaire completed by Implats in May 2006, the HIV infection rate at its mines is 11 – 15% only (16% in 2004)³, while Anglo Platinum claims an infection level of 16 –20%. These figures, especially the Implats figure, are remarkably low give the extremely high rate of infection in Rustenburg and other mining towns. In an interview with an Impala mine official [Mr Anderson](#) on 18 May 2006 it was indicated that the HIV and Aids infection level at Impala was 16%. We asked him about testing. He indicated that amongst management there was a 100% (every manager was tested) testing, although it was voluntary. He noted that amongst the ordinary mineworkers there was a resistance to both testing and revelation of HIV status. Very few workers agreed to be tested [this brings into serious doubt the claim by Impala of only a 16% infection level as the test sample was obviously skewed by the above circumstances.

A medical practitioner at Tapologo Aids Hospice explained in an interview that the mines have, since 1994, outsourced much of their activities to sub-contractors. Thus, sub-contractors now employ workers who were previously in the direct employment of the mines. The HIV status of these workers would no longer show in mine statistics for HIV infection, neither would they have access to mine health programmes.

³ IMPLATS CORPORATE RESPONSIBILITY REPORT 2004:50

Some examples of mine corporate HIV strategies that attempt to go beyond the limitations of normal HIV/AIDS programs:

- **Lonmin** is constructing family housing in an effort to stem the spread of HIV and to grow a more stable workforce.

- **Anglo Platinum**
This company is hoping to eliminate the hostel system within the next 1 – 5 years. However, according to the response of this company to an administered questionnaire they are not yet providing ARV treatment to families and dependants of HIV infected employees (including not doing so for families and dependants in distant labour supplying areas), They are still considering doing so. Not under consideration at all is providing ARV treatment to employees living with HIV and AIDS who have been retrenched or pensioned off.⁴

- **Implats has an extensive preventative programme on all its mines, including:**
 - ✓ **Education of new employees** – A specific programme aimed at bringing new employees' level of understanding of HIV/AIDS up to the level of existing employees
 - ✓ **Education of current employees** - All employees are updated on the latest appropriate knowledge of the South African HIV epidemic and how to deal with it.
 - ✓ **The “Do You Know” campaign** – This campaign continues to deliver key messages and prompt employee thinking on the HIV epidemic, using easy to understand signage notice boards and billboards.
 - ✓ **HIV-positive peer educators** – The use of employees who are HIV positive and who have come to terms with and openly disclosed their status, to educate other employees on the realities of HIV and how to cope with living with the illness.
 - ✓ **Sexually transmitted infections (STIs)** – Free and comprehensive treatment for STI's for employees as well as sponsoring community STI clinics. Every patient who develops a STI undergoes extensive counselling and is offered a voluntary HIV test.
 - ✓ **Traditional healers** – These play a role in the Impala HIV/AIDS education programme in dispelling many of the myths around the illness and encouraging safe sexual practices. Impala also provides assistance to the Rustenburg Traditional Healers cooperative which seeks to establish a Traditional Health Practitioners Council of South Africa.
 - ✓ **Commercial Sex Workers Project** – This is a joint venture between local mining groups, the Department of Health and Impala to reduce the risk of infection through commercial sexual contacts.
 - ✓ **Anti-retroviral Treatment (ART) rollout** – Impala sponsors and actively participates in the Department of Health's ART rollout campaign. This treatment benefits all communities in the company's areas of operation.
 - ✓ **HIV/AIDS Councils** - Impala actively participates and supports local, regional and provincial AIDS councils.
 - ✓ **Voluntary counselling and testing (VCT)** – all employees and their spouses are encouraged to undergo VCT. According to the Implats Corporate Social Responsibility Report for 2004, 6 570 tests were done during 2004.⁵

⁴ See Anglo Platinum's response to Questionnaire in Appendix 2.2

⁵ IMPLATS CORPORATE RESPONSIBILITY REPORT, 2004:4

- **EXSTRATA** assists NGOs who are involved with HCBC workers. It also supports HIV/AIDS community awareness programmes of the Department of Health and NGOs. It is partnering the Department of Health to ensure that the government rollout of ART succeeds. They do so because of the stigmatisation that results from making public the HIV status of employees. Most employees prefer not to be tested at the work place. Xstrata therefore prefers supporting and sustaining the programmes in the community, outside of the work environment as an alternative.⁶

The impact of sub-contracting on HIV and AIDS on the mines

QUESTION

The migrant labour question also puzzles me. Because all the mines are claiming that they are gradually phasing out migrant labour and that they are turning the hostels into family accommodation, and that they are providing off-site living allowances. Impala even claims that it only recruits from within a sixty-kilometre radius of their mining operations. All the mines claim much reduced percentages of migrant workers in their total labour forces. For the gold mines for which there is much more research literature, in places like Welkom, Stilfontein and Klerksdorp everything you say is true about the rates of infection.

ANSWER

From what we see in our clinics, it might be true for the workers in the direct employment of the mines. But, what the mines have done is they have shifted their responsibility by outsourcing much of what was previously done by workers working directly for them, by subcontract such work out to sub-contractors. The sub-contractors employ any workers who are available and in Freedom Park more than 80% of people that we see at the clinic are either Xhosa (Eastern Cape) or Shangaan (Mozambique), or even people from as far as Malawi.

QUESTION

That is interesting because in 1988 the Apartheid Government wanted the mines to stop recruiting people from outside of South Africa, and there was a major reduction in such recruitment. This reduction indirectly caused an economic crisis in Malawi, which quickly became a political crisis. It is interesting to note that people are still coming in from outside of the county.

ANSWER

It seems to me as if part of the problem is a lack of a real and consistent housing policy for mineworkers on the part of mining companies. A policy that would allow for: Control of who is working here; The provision of proper services; Proper provision of sport and cultural amenities; and, Proper provision of sport and cultural amenities.

QUESTION

Is this a contributing factor?

ANSWER

From my perspective the mines are dodging their responsibilities with the outsourcing of the labour because there is a rule that says that all labour working on the mine must be seen by their medical officer. But if it is one of their labourers he gets seen to in their health facilities and he is sorted out. But if it is a contractors labourer, and he is seen, he does not get treated, he is given a letter to go and sort out his own hypertension, his own imaturia or his own TB or whatever with no responsibility to the mine...

QUESTION

So the responsibility has been shifted to the contractor?

ANSWER

To the contractor, and the contractor just says to the labourer that until you are pronounced fit by the mine you cannot work for me. So we find these poor guys coming in there with a letter saying that he is

hypertensive and he must be investigated and treated until he is fit and then he can be reemployed by the subcontractor at the mine. Because of these forms and the letter we can see that these people are not local people, they are not Tswana people, they are people from Mozambique, Zimbabwe, Lesotho, the Eastern Cape. When I write the death certificates of the people who have died from HIV and AIDS I see their passports, I can see that they came from Lesotho, Malawi, Mozambique and so on.

Source: [Interview with community medical practitioner](#)

The mines, HIV and AIDS and labour supplying areas

The economy of Lesotho relies on the remittances of migrant mineworkers working in South Africa and on agriculture. It is mainly women who drive agriculture in Lesotho given that the majority of the men in Lesotho are migrant workers. The biggest challenge facing Lesotho is HIV and AIDS. HIV and AIDS “affects around 29% of adults of working age and has reduced net population growth rate to only 0,97% per annum” (Kinninimont, J. (ed.) 2006:10). Despite increased government efforts at prevention and treatment the problem is enormous and the country is faced with a growing number of orphans. Robyn Pharoah and Taya Weiss have suggested a link between AIDS, orphans, crime and instability in a number of Southern African countries (ISS occasional paper 107:2005:16).

AIDS is causing a decline in established sources of income and employment. Agricultural production is in decline because of the high mortality rate amongst women who are the mainstay of agriculture in Lesotho. In 1980 the country produced 80% of its cereal needs. By 2004 this has fallen to 30% (opp. cit. p10). “There have been pockets of drought, but more important reasons are the loss of experienced growers to HIV/AIDS, and widespread soil erosion...” (Ibid.p.10). The country is further challenged by a decline in remittances from Basotho miners working in South Africa because of HIV and AIDS and the restructuring and downsizing of the South African mining sector.

Lesotho is therefore trapped in a vicious aids/poverty cycle partly to blame on HIV and AIDS. The question is whether civil society should bring pressure to bear on the mining sector in South Africa to force the industry to recognise this as part of its social responsibility obligations.

It is by simple deduction that one may argue that the situation in Lesotho will be, or is already being replicated in other areas supply migrant labour to the mining industry such as Kwa Zulu Natal, Swaziland, Mozambique and the Eastern Cape.

Short-comings of the corporate interventions

There is a SADC Protocol on Mining, which came into effect in September 1997. The protocol focuses on environmental protection, small-scale mining and occupational health and safety, but

fails to deal with HIV and AIDS. A SADC HIV/AIDS Strategic Framework and Programme of Action was established in 2000 and includes a section on mining undertaking to:

- Establishing the extent of HIV/AIDS in the SADC mining sector;
- Minimising the spread of HIV/AIDS in the mining sector; and
- Providing adequate care for the infected and affected on the mining sector.

Generally the limitations of these strategies are:

- They are aimed at dealing with the economic impact of HIV/AIDS on the sector, rather than preventing HIV infection;
- They exonerate the mines of responsibility for providing family health and support services to the mineworker, limiting support only to the direct employee in the case of migrants;
- They exonerate the mines of responsibility for the impact of the hostels on surrounding communities who are affected and infected and who in turn affect and infect mine workers living in single sex hostels. The mines do make interventions in surrounding communities but this is out of largesse rather than out of sense of responsibility;
- There is a need to coordinate and standardise the interventions of all the major mining companies at a macro level so that all mineworkers and all communities where mining operations occur and those from where mineworkers are recruited receive similar interventions care and treatment.
- The issue of migrant labour needs to be dealt with as a macro industry issue. Ending migrant labour would disrupt the communities from where the mineworkers derive, continuing migrant labour undermines any effective interventions regarding HIV and AIDS, unless the standard of intervention is the same in the rural community from which the workers are recruited as it is at their site of employment.
- There needs to be a uniform approach to converting from migrant housing hostels to the provision of family accommodation. Anglo Platinum is committed to eliminating hostels within 1 to 5 years, whereas Impala is only committed to do so between 6 to 10 years. This indicates again that there is a lack of uniformity in the approach of mining companies to the issue of HIV and Aids.
- The housing solutions offered by the mines in place of the single sex hostels, such as the “living-out” allowance often traps workers in urban slums such as informal settlements, where they fall prey to the sex industry, thus exacerbating the HIV/AIDS problem.
- The system of sub-contracting leads to the exclusion of workers employed by subcontractors from the ART programmes offered by mining corporations.

- The South African Chamber of Mines “claims that HIV/AIDS is a public health issue and thus mining companies have limited responsibility for managing the pandemic.”⁷
- The mines are neatly sidestepping the issue as more and more of the activities on the mines are sub-contracted.

HIV and AIDS, funeral benefits and industrial action at IMPALA Platinum during March 2003.
 The Impala public relations department released a notice of an unprotected work stoppage at the Impala Lease Area with the following background note:

The work stoppage relates to a disagreement in respect of funeral benefits payable to employees who die as a result of non-work related causes, including AIDS, as well as motor vehicle and other accidents, cancer, diabetes, etc. All employees are covered for funeral benefits amounting to R10,000 payable by the company's Provident Fund in line with an agreement reached with the NUM on this matter in January 2003.

*Historically, Employees received R5,000 funeral benefits and could also access additional funds from a so-called Welfare Fund, which had been funded by the proceeds from on-mine recreational facilities. **The Fund proved to be unsustainable as fewer employees chose to live in on-mine hostels, while demands on the Fund also increased through an increase in HIV/AIDS related deaths. Implats had been in discussions with the NUM on this issue since 1999.***

This statement raises serious questions about the levels of HIV and AIDS infections on Impala mines, and possibly brings into question Impala's repeated claims of a very low level of infection based on voluntary testing at its mines.
 Source: Impala Public Relations Department

8. Do the mining companies under review adopt a policy of non-discrimination and commit to programmes to overcome discrimination and stigmatisation of employees with HIV/AIDS? (2.2.C.5.)

Yes, they do have such policies, as their HIV/AIDS programmes are very sophisticated.

9. Do the mining corporations under review provide an ongoing education on the prevention of HIV, training to overcome the stigmatisation of employees with HIV/AIDS, and provide support systems to employees and their families such as counselling? (2.2.B.7)

Yes they do. However workers working for sub-contracting forms and migrant workers whose families reside far away or in distant countries do not share in the benefit.

Issues arising from Section 7

Strengths	Weaknesses	Recommendations
The mining corporations under review are committed to improving working conditions and workplace safety continuously	By its very nature the working environment will never be free of toxic substances or hazardous conditions. In the South African conditions the geological and	Constant vigilance by trade unions and independent monitors.

⁷ Elias, Taylor, Ramasar et al. *HIV/AIDS, THE MINING AND MINERALS SECTOR AND SUSTAINABLE DEVELOPMENT IN SOUTHERN AFRICA* in the Mining, Minerals and Sustainable Development Report (2001)

	geographical conditions means a constant trade off between expenses, including that for workplace safety and that of profitability.	
The mining corporations have well-established health and treatment infrastructure.	Those family members residing in labour sending areas do not have the same level of access as those living in close proximity to the mines.	CBOs, FBOs and NGOs in labour sending areas must be mobilised to bring pressure to bear on corporations regarding their responsibilities in labour sending areas.
The mines are gradually phasing out the migrant labour system and single sex hostels	The health conditions in surrounding informal settlements where workers taking advantage of living out allowances go and live are often appalling lacking in electricity, water and sewage. This impacts negatively on the health status of workers. Often the living out allowance is insufficient to afford to pay for rental in proper accommodation. Often the pressure on housing in proper townships is so intense that mine workers are unable to find accommodation there. Often the nearest townships with proper accommodation are far away, placing the burden of transport costs on the workers. In informal settlements sex-work is rife and combined with rampant alcoholism mine workers run the gauntlet of STDs and HIV/AIDS	NGOs, CBOs and FBOs must intervene in informal settlements with the full course of HIV/AIDS awareness, education and treatment programs. They should seek funding from the mines for these programs. Mines and civil society structures should also intervene to create jobs and business opportunities for unemployed women, to assist them to escape from the sex trade.

Section 8: Communications and reporting mechanisms

Committee mechanisms

1. **Do the mining companies under review have communication and reporting systems in place which:**

- **Allows for two way communication strategy involving a top-down reporting pattern on challenges and progress and bottom-up reporting on concerns and issues:**

Yes, all the mining corporations under review do have such systems.

Xstrata has a number of systems and forums in place that encourages employee feedback and commodity businesses or divisions undertake ad hoc surveys.

Anglo has an Employee Relationship Forum (ERP) signed by all recognised unions. It also has a central partnership forum (CPF) and operating unit partnership forums (OUPFs).

- **Allows for interaction with communities and other stakeholders**

Yes, all the mining corporations under review do communicate with many different stakeholders in many different ways. However, they do not have any forum that brings all stakeholder groups together.

It should be noted that in their relations with stakeholders there is an immense imbalance of power, wealth and knowledge, which would always put the corporations a step ahead of the stakeholders.

A number of *de facto* concerns arise, particularly around the relationship between mining corporations and communities as stakeholders:

- ✓ Mr Richard Spoor made certain broad allegations with regard to the manner in which corporations abuse the rights of indigenous communities. Amplats sought to gag Mr Spoor with a court order. Amplats lost the case when Mr Spoor was able to support his point of view seven days later.
- ✓ Amplats and ARM lost cases brought against them by communities in Limpopo and Mpumalanga for abusing the rights of indigenous communities.
- ✓ Afplats, with the intervention of the Office of the Premier in the North West Province illegally removed the *Bakwena ba Magopa* regent, Emmanuel Segwagwa Mamogale, by the provincial premier for opposing a mining deal worth R1, 9 billion. The courts reinstated the regent.

These cases would suggest that the mines are less than candid on this issue.

Indigenous people in their relation to the mines lack the knowledge, power, and resources to effectively negotiate the best possible agreements pertaining to their rights. The presence of state and traditional authorities on the boards of corporations further compromises the ability of indigenous communities to negotiate effectively. Where communities turn to the institutions of the state for assistance, such as local government, provincial government or national government the presence of politicians and or civil servants on boards further compromise their position.

- **Allows for the creation of corporate committees with proportional representation of all the stakeholders.**

There are no such committees and it is unlikely that they will ever be created.

REPORTING FRAMEWORK

The mining corporations use a variety of media to communicate, including websites on the Internet, radio, television, newspapers and corporate publications. The major vehicle is constituted of the annual report, which normally includes a separate business report and a corporate social responsibility report. The reports are not available in indigenous languages, which act as a further barrier to the effective engagement by the majority of South Africans of these reports.

2. Is the reporting rooted and grounded in transparent disclosure?

The reporting is extremely detailed and comprehensive, however the degree of technical difficulty would put it beyond the grasp of some stakeholders. Many negative issues, such as community conflicts, where the corporation lost cases brought by communities are simply not reported on. Many geological issues and hydrological issues, which would be of concern to communities, are simply left out altogether.

3. Is the information disclosed directly related to the communities at sites of impact to facilitate their participation?

Unfortunately, this is an area in which the reporting is lacking. In the case of Xstrata local and international operational issues are presented in compounded form without a clear separation of what applies to South Africa and what applies elsewhere. Even though local examples are given. The reports by Implats and Amplats are better in this regard.

The reports are often about what the corporations have done for communities, rather than with communities.

Many negative issues, such as community conflicts, where the corporation lost cases brought by communities are simply not reported on. Many geological issues and hydrological issues, which would be of concern to communities are simply left out altogether.

Issues arising from Section 8

Strengths	Weaknesses	Recommendations
All the mining corporations under review do communicate with many different stakeholders in many different ways. However, they do not have any forum that brings all stakeholder groups together.	It should be noted that in their relations with stakeholders there is an immense imbalance of power, wealth and knowledge, which would always put the corporations a step ahead of the stakeholders.	Communities must be empowered with expert legal, environmental, geological and hydrological advice.
The mining corporations use a variety of media to communicate, including websites on the internet, radio, television, newspapers and corporate publications. The major vehicle is constituted of the annual report, which normally includes a separate business report and a corporate social responsibility report.	The degree of technical difficulty would put it beyond the grasp of some stakeholders. Many negative issues, such as community conflicts, where the corporation lost cases brought by communities are simply not reported on. Many geological issues and hydrological issues, which would be of concern to communities are simply left out altogether.	Communities must be empowered with expert legal, environmental, geological and hydrological advice.

CONCLUSION AND WAY FORWARD

The research found the following

- The Mining Charter and Balanced Scorecard is too narrowly defined, and was negotiated between government, labour and the industry, excluding other stakeholders such as communities, farmers, community-based organisations, faith-based organisations and non-governmental organisations.
- Although the Mining Charter requires social plans from each mining operation that shows how the operation engages with communities, the Charter is vague on the mechanics of such engagement. Mining companies also do not generally make these social plans available to the public. This has resulted in communities being saturated with mine sponsored research teams and section 21 operations funded, often by competing companies in one and the same community resulting in research fatigue, in confusing competition between mines for hearts and minds, and very little attention being paid to the impact of mining on communities. Thus pet projects often involve the construction of clinics and classrooms, or housing all of which are traditionally Integrated Development Plans and Local Economic Development Strategies. Very few of the projects refer to the hydrological, environmental, geological, and economic or social and health impacts of mining on communities and how to redress this kind of impact.
- In issues such as Environmental Impact Assessments (EIAs), ongoing environmental monitoring, and community complaints around such issues the mines have the benefit of a severe imbalance of resources and expertise which allow them to easily overcome barriers set by law, while claiming compliance with the legislative environment, by showing EIA consultation with often ignorant and impoverished communities.
- Mining legislation such as the Minerals and Energy Act and the Mining Charter requires that mines are assessed through reports to Government, this excludes civil society from the process and calls into question the results;
- Recent cases before the courts and the Human Rights Commission invariably found in favour of communities, which emphasises the need for an independent monitoring and evaluation structure.
- The mines are engaged in a process of smoke and mirrors when it comes to migrant labour. Migrant labour is disguised through the living out allowance. Through this nefarious mechanism the mines have also shifted the costs and responsibilities for housing, security, feeding, health etc. onto the resources of already overstretched local government authorities and onto the workers themselves. The living out allowance has also caused a deterioration in

the health and nutritional levels of workers, an increase in xenophobia amongst local people against migrants now living in informal settlements and an escalation in the crime rates.

- The DME Directorate in the North West Province has a reputation for corruption, and has been the subject of numerous investigations.
- The Bench Marks Foundation could play a significant role in making communities, community-based organisations, faith-based organisations, non-governmental organisations, etc. aware of their rights and of the responsibilities and obligations of mining companies. This could help swing the power/knowledge nexus in favour of communities.

Despite a toughening up in mining and environmental legislation, Rustenburg is experiencing a number of challenges that should be of great concern to residents and surrounding communities, these include:

- ⑩ The highest HIV/AIDS infection levels in the North West Province. In the informal settlements that have sprung up around the mines the infection levels is approaching 60% (based on ante-natal clinic results). This situation is caused by: a) migrant labour to the mines, b) the policy of sub-contracting by the mines, d) the living out allowance given to workers in an attempt to phase out migrant labour, and e) the lack of job opportunities, especially for women in the area, who then resort to sex-work as a source of income.
- ⑩ Apart from HIV and AIDS medical practitioners note that 80% of the patients they see on a day-to-day basis suffer from respiratory infections. This is attributable to a) the smelters associated with the mining industry, due to CO₂ and SO₂ emissions, b) the dependence on coal, paraffin and wood for energy in informal settlements where there is no electricity, c) increased traffic volumes as a result of the mining boom, and d) dust blown from mining waste sites such as rock dumps, tailings dams, etc. There is very little independent air quality monitoring capacity at either local or district government levels.



(The Modderspruit Cemetery with large number of very recent graves attesting to the impact of HIV/Aids. Modderspruit is surrounded by mining operations)

- ⑩ It is estimated, by the Mayor of Rustenburg, that there are 250 000 people living in informal settlements around Rustenburg. These informal settlements have no access to sewage, refuse removal, electricity or piped water. Aerial photographs show that almost every platinum mine around Rustenburg has its own informal settlement.



(Informal Settlement in close proximity to Lonplats East)

- ⑩ Unemployment and poverty is a major challenge as the population growth due to inward migration is exceeding economic growth and therefore the growth of job opportunities. Migrant labour is a contributory factor.
- ⑩ Underground water resources are threatened by the pumping out of water from aquifers for mine safety and by the perforation of dykes, which changes the direction of water courses and the level of the water table. The North West Province is a water-stressed province. The pumping out of underground water could also result in the development of fissures.
- ⑩ CO₂ and SO₂ emissions associated with the increasing number of platinum smelters in the area will also give rise to acid rain. Some farmers are already complaining that the dust and emissions from the mines and smelters are impacting on their citrus crops.



(Some citrus farmers between Brits and Rustenburg claim that emissions from platinum smelters may be responsible for citrus trees dying in the area).

- ⑩ Due to the geological history of the formation of the Magaliesberg the area is replete with a number of major and minor faults. These faults have the potential of becoming a seismic risk to the area as a result of mining. Serious earthquakes resulting from mining interference with faults have already occurred in Welkom and in Stilfontein,
- ⑩ In terms of the Human Development Index the mines are still seriously biased towards the male gender, and at senior management level towards white men.
- ⑩ Lack of economic and employment opportunities for women and the disabled in the industry.
- ⑩ Lack of safety and security as a result of high unemployment, poverty and poor services.
- ⑩ Lack of adherence to heritage legislation. Authorities are not informed of the presence of heritage sites and mining operations often roll roughshod over iron age sites in the area.



(Iron Age heritage site under threat from nearby mining operation near Modderspruit)

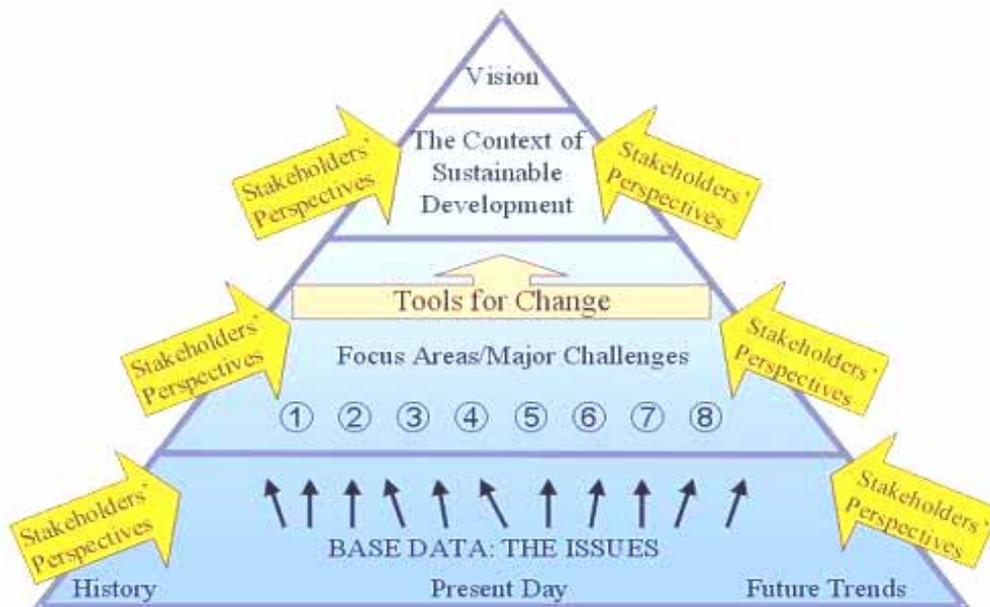
- ⑩ Pollution of water sources due to a) informal settlements that lack waste removal and sewage services, b) mining waste such as rock piles, tailings dams etc. There is very little independent water quality monitoring capacity at either local government or district government level.
- ⑩ A growth in the income gap between the wealthy and the poor and the general exclusion of the poor from the benefits of the mining boom.
- ⑩ In terms of the Human Development Indices (HDIs) of the mining companies there is much room for improvement, particularly with regard to the employment of women in general and black women in particular, and the disabled.
- ⑩ Bureaucracy and the system of sub-contracting is proving, in many instances to be a hindrance to local procurement and therefore to SME growth and development. Sub-contracting and outsourcing, while being portrayed as potential vehicles for black economic empowerment turns out, more often than not, to be blunt instruments for carving away at the influence and numerical strength of the National Union of Mineworkers.

- ⑩ Despite the Mining Charter, South African mines do not provide income, health, safety and environmental standards equal to that of their operations in North America, Europe or Australia.
- ⑩ The mining companies in the area are attempting to address some of these challenges through the Mining Charter, the Balanced Scorecard and the associated social plans. However, some of the solutions offered by the mining charter, such as that relating to the phasing out of the migrant labour system are proving to become problems in themselves. There is also little coordination, despite many projects that the mines are engaged in as part of their social responsibility programmes, between mines (peer cooperation), and between the individual mining companies and local government, district government and traditional authorities. The extent to which the mining industry involves civil society structures such as NGOs, CBOs and FBOs is also very uneven.

Most of the mining corporations are benign, they mean well, but most come from a long history of top down paternalistic management and community engagement and very steep pyramid shaped hierarchies. Most mineworkers are still referred to as 'mine boys'. They are more used to telling people what they need than to listening to what people's needs are. The new legislative environment combined with archaic paternalistic behaviour patterns is what bedevils the best efforts of the industry at effective CSR/CSI involvement with communities.

Some of these challenges could represent a variety of opportunities that could draw all the role players in the P.P.A closer together and provide for real enterprise development, job creating and community development opportunities.

A first requirement would be that the corporations adopt a bottom up approach in their interaction with communities.



(Source: MMSD, Breaking New Ground, E-Book. World Business Council for Sustainable Development)

What is required for the sustainable development of communities in mining areas is that companies in their engagement with communities take a people/community centred approach, rather than one that is driven by profits. Profits will follow such an approach, while a failure to act responsibly might well impede the realisation of profit.

What follows is a list of potential projects mining companies could engage in that would not only create large numbers of jobs, but which will also address some of the negative impacts of mining on the environment and surrounding communities:

- Reed and grass production and harvesting as part of mine waste rehabilitation. Reeds are well known for their natural ability to absorb impurities from polluted water. Reeds are also in demand for the manufacture of reed blinds, cane furniture etc. Most mines occupy large areas of land, often covered in grass. South Africa annually exports large volumes of grass for thatching. Both grass and reed harvesting are economic activities suitable for small and medium enterprises and cooperatives, which could employ large numbers of women and youth profitably.
- Catfish production as part of water systems rehabilitation and the nutritional improvement of communities. China is the world's largest consumer of catfish. Currently it imports most of its demand from the United States of America. Catfish production in streams and dams by communities residing close to mining operations, such as those in informal settlements could

be productively engaged in catfish production. Again large numbers of youth and women could be productively and profitably employed, taking women out of the sex worker trap that currently dominates the Rustenburg area.

- Pomegranate and vegetable juice production as part of mine waste rehabilitation and use of under-utilised land. Pomegranate juice and vegetable juices are in high demand in the food, organic medicines and pharmaceutical industries. Pomegranates grow well on marginal soils, even on the soil of tailings facilities.
- Bio-diesel production as part of mine waste rehabilitation and utilisation of unused mine and government land. The *Jatropha Curcas* plant grows well on marginal soils. The plant is extremely hardy and its seed contains very high oil content. Tree plantations are very labour intensive. For relatively small investments nurseries, plantations, crushing facilities, extraction facilities and oil refineries can be developed for the production of bio-diesel. The platinum mines consume huge quantities of diesel daily. Producing diesel from tree seeds is preferable and more sustainable to producing diesel from maize and sunflower. The prices of the latter two crops are unpredictable, and their production for diesel would impact negatively on basic staple food prices as agricultural land for food production is converted into land for diesel production.
- Producing animal feed and fertiliser from the husks of crushed bio-diesel seed;
- Intercropping as part of the bio-diesel project. Where bio-diesel plantations have been introduced in Swaziland, and elsewhere in Africa and Asia intercropping with beans and other food crops have ensured an improvement in the nutritional levels of communities.
- Earthworm farming as part of rehabilitation of land;
- Small scale dimension stone mining and processing on land owned by platinum mines, where granite resources remain un-harvested; This would allow local communities to engage in small scale mining operations with the assistance and in close proximity to the big mining operations;
- Sand, clay and silica products;
- Slate products manufacturing;
- Contract mining promotion;
- Crushing stone for the building and construction industry in the platinum producing area by small community owned SMEs thereby processing mine waste. Rustenburg is experiencing a building boom and crushed stone and sand is in high demand.

The Bench Marks Foundation, along with its PPP partners, the Greater Rustenburg Community Foundation (GRCF) could facilitate a way forward that would perhaps see the realization of some of the suggested projects that would see not only environmental issues, but also issues of unemployment, poverty, prostitution etc. addressed. This could perhaps involve a process that will:

- Engage all the role players;
- Study the feasibility of the suggested projects;
- Develop project business plans
- Find financing for projects
- Implement projects.
- A second round of action research be engaged in that will:
- Engage all the role players;
- Study the feasibility of the suggested projects;
- Develop project business plans
- Find financing for projects
- Implement projects.

In the book of Genesis, God gives Adam stewardship over the planet with its environment, including all the plants and animals. Surely the intention of this stewardship was not to destroy the planet, but to use it sensibly and sustainably. Are we living up to the responsibility of this stewardship in South Africa?

Glossary of Terms, Abbreviations and Acronyms

ABET	Adult Basic Education and Training
AD	Acid Drainage
ALC	African Labour Corps
AMC	Acid Mine Drainage
ANGLO PLATINUM	Anglo Platinum
ARD	Acid Rock Drainage
APC	African Pioneer Corps
ARM	African rainbow Minerals
ART	Anti-Retroviral Treatment
ATSDR	Agency for Toxic Substances and Disease Registry
BBSEE	Broad-Based Socio Economic Empowerment
BIC	Bushveld Igneous Complex
BMA	British Medical Association
Bojanala Platinum District	Refers to the district in which the district council with the same name is situated, within this district there are towns such as Rustenburg, Mooinooi and Brits
BONUME	Bophuthatswana National Union of Mine Employees
BPAS	Best Practice AIDS Standard
CBO	Community Based Organisation
CDM	Clean Development Mechanism
CFCs	Chlorofluorocarbons
CSI	Corporate Social Investment
CSIR	Center for Scientific and Industrial Research
CSR	Corporate Social Responsibility
CSVV	Center for the Study of Violence and Reconciliation
DEAT	Department for Environmental Affairs and Tourism
DME	Department of Minerals and Energy
DoE	Department of the Environment
DoH	Department of Health
DoL	Department of Labour
DWAF	Department of Water Affairs and Forestry
	A natural slanting, often impermeable, rock/geological feature. Pilansberg alkalic dykes that compartmentalize ground water flow.
EJNF	Environmental Justice Network Forum
EPA	Environmental Protection Agency
ERT	European Round Table of Industrialists
FBO	Faith Based Organization
FIFR	Fatal Injury Frequency Rate
Fault	A break in rock-strata, which if interfered with by mining can cause seismic activity.
GBC	Global Business Coalition
HCBC	Home Community Based Care Workers
HCFC's	Hydrochlorofluorocarbons
HDI	Human Development Index
HDSA	Historically Disadvantaged South Africans
HSEC	Health and Safety Employment Conditions
ICOLD	International Commission on Large Dams
IDC	Industrial Development Corporation
Implats	Implats
ISCOR	Iron and Steel Corporation of South Africa
LTFR	Lost Time Frequency Rate
JCI	Johannesburg Consolidated Investments
KZN	KwaZulu Natal

Level 1 Incidents	Minor or no impact on the physical or biological environment with no significant or long-term impairment of ecosystem function or ground/surface water resources; and/or an inconvenience/disturbance/disruption/annoyance of short duration and with no long-term effect on the community; and or release of material which has the potential to cause illness, injury, or property damage to the public, or one which causes short-term discomfort; and/or isolated public complaints; and or minor infringements of legal requirements.
Level 2 Incidents	Moderate impact on the physical or biological environment with limited impairment of ecosystem function or ground/surface water resource; and/or an inconvenience/disturbance/disruption/annoyance of moderate duration or with medium-term effect on the community; and/or a release of material which causes severe but reversible illness or moderate property damage to the public; and/or attention from local media or widespread complaints; and/or formal intervention by authorities or where prosecution and conviction have led to fines totalling less than US\$100 000 per event.
Level 3 Incidents	Significant impact on the physical or biological environment with extensive or long-term impairment of ecosystem function or ground/surface water resource; and/or an inconvenience/disturbance/disruption/annoyance of long duration or with long-term effect on the community; and/or a release of material which causes chronic illness, permanent disabling injury, fatality, or extensive property damage to the public; and/or public or national/international media outcry; and/or instances where prosecution has led to conviction and fines totalling more than US\$100 000 per event.
MEC	Mineral and Energy Complex
MMSD	Mining Minerals Sustainable Development
Moses Kotane Local Municipality	Refers to the municipal area in the North West of Rustenburg inclusive of Sun City, Mogwase, Pella, Mankwe, Pilanesberg, Bakgatla etc.
MQA	Mining Qualifications Authority
NGO	Non-Government Organisation
NGWQMP	National Groundwater Quality Monitoring Programme
NUM	National Union of Mineworkers
NWDACE	North West Department of Agriculture Conservation and Environment
OH&S	Occupational Health and Safety
PGM	Platinum Group Metals
Platinum Region	The Platinum Region includes the towns of Rustenburg, Brits, Mooinooi, and the Districts of Bojanala and Moses Kotane.
PIMMS	Planning and Information Support Systems
RBN employees	
SABC	South African Broadcasting Corporation
SADC	Southern African Development Community
SANGONeT	Southern African Non-Governmental Organisations Network
SANSN	South African Seismographic Network
SASOL	South African Oil from Coal Company
SETA	Sector Education and Training Authority
StatsSA	Statistics South Africa
STDs	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
TB	Tuberculosis
TDS	Totally Dissolved Solids
TEBA	the Employment Bureau of Africa
TELKOM	South Africa's Fixed Line Telecommunications monopoly
UNEP	United Nations Environmental Programme

UNFCCC	United Nations Framework Convention on Climate Change
UV	Ultra Violet
VCT	Voluntary Counselling and Testing
VOCs	Volcanic organic compounds
WHO	World Health Organisation
WMPU	Workers Mouthpiece Union
WNELA	Witwatersrand Native Labour Recruiting Agency
WSSD	World Summit on Sustainable Development

BIBLIOGRAPHY

- Agency for Toxic Substances and Disease Registry, Centre for Disease Control (ATSDR). <http://www.atsdr.cdc.gov/ToxProfiles/phs9004.html> 2001.
- Anglo American plc *Good Neighbours Our work with communities* (Anglo American plc, London, 2002)
- Anglo Platinum Limited, *Annual Report, 2005, Volume 1, Business Report (South Africa)*
- Anglo Platinum Limited, *Annual Report, 2005, Volume 2, Sustainable Development Report (South Africa)*
- Ashton, P, Love, D. Mahachi, H. & Dirks, P. *An Overview of the Impact of Mining and Mineral Processing Operations on Water Resources and Water Quality in the Zambezi, Limpopo and Olifants Catchments in Southern Africa. Contract Report to the Mining, Minerals and Sustainable Development (Southern Africa).* (CSIR Report No. ENV-P-C 2001-042, CSIR, Pretoria. 2001.)
- Association of Mine Managers of the Transvaal (Inc) *Papers and Discussions, 1952 – 1953* (The Transvaal and Orange Free State Chamber of Mines. 1953).
- Association of Mine Managers of the Transvaal (Inc) *Papers and Discussions, 1962-1963* (Vols 1 and 2) (The Transvaal and Orange Free State Chamber of Mines, 1964).
- Association of Mine Managers of the Transvaal (Inc) *Papers and Discussions, 1966-1967* (The Transvaal and Orange Free State Chamber of Mines, 1968).
- Ballesteros, E.B. Special Report on Mercenary Activities in Africa to the Human Rights Commission of the United Nations, (New York, 1994).
- Banati, P., Low Beer, D. Stoneburner, R.L. Katz, I and Staedler, J. *Mining and AIDS mortality in South Africa: A spatial assessment* (WISER, Wits, Johannesburg, 2005)
- Barron, C. *De Beers boss is no rough diamond.* In *Sunday Times, Business Times*, (October 9, 2005).
- Baylies, C and Cohen R (eds) *Review of African Political Economy*, (No 39, September 1987).
- Behera, D. *An Analysis of Effect of Common Domestic Fuels on Respiratory Function.* (*Indian J Chest Dis Allied Sci*, 39: 235-243. 1997).
- Bench Marks Foundation of Southern Africa for Corporate Social Responsibility (BeBSA CSR), *Principles for Global Corporate Responsibility: Benchmarks for Measuring Business Performance.* The Third Edition Revised and Released in 2003 by the Steering Group of the Global Principles Network.
- Benson, F.B., Henderson, J.J. & Caldwell, D.E. *Indoor-Outdoor Pollution Relationships: A Literature Review.* (EPAAP-112. EPA, USA. 10pp. 1972).
- Berger, P. *To Empower People, From State to Civil Society.* Occasional Lecture Series, The Centre for Development and Enterprise (Johannesburg, 1996).
- Bernstein, A. *Policy Making in a New Democracy, South Africa's Challenges for the 21st Century* (Johannesburg, Centre for Development and Enterprise, 1999).
- Biersteker, K., de Graaf, H. & Nass, A.G. *Indoor air pollution in Rotterdam homes.* (*International Journal of Air and Water Pollution*, 9: 343-350, 1965).
- Bitterli, U. *Cultures in Conflict* (Polity Press, Great Britain, 1989).
- Bond, P. *Elite Transition, From Apartheid to Neoliberalism in South Africa* (University of Kwa-Zulu Natal Press, Scottsville, South Africa, 2000, 2005)
- Bond, P. *Talk Left, Walk Right* (University of Kwa-Zulu Natal Press, Scottsville, South Africa).
- Bonner, P.L. (ed) *Working Papers in Southern African Studies* (African Studies Institute, University of the Witwatersrand, Johannesburg, 1979).
- Botha, L.J. & Bredenkamp, D.B. *Quantitative estimation of recharge and aquifer storativity of the Louwna-Coetzersdam aquifer system.* (Technical report GH3786. Directorate Geohydrology. DWAF, Pretoria. 1992).
- Bowker, R (ed.) *Opportunity: Mapping out Trade and Industry Investment* (South African Chamber of Business, Cape Media, Cape Town, 2005) relevant articles: Starke, A. "BEE Revisited, Positive steps along the black economic empowerment route" and Clancy, J.S. Skutsch, M & Batchelor, S. "The Gender Energy Matrix, Finding the energy to address gender concerns."
- Braune, E. *Approaches for Groundwater Quality Protection in South Africa.* Workshop presentation: Practical Application of Water Quality Management. (Port Elizabeth Technikon, 12-13 April 1994).
- Bredenkamp, D.B. *Groundwater monitoring: a critical evaluation of groundwater monitoring in water resources evaluation and management.* Report to Water Research Commission. (WRC Report No. 838/1/00. WRC, Pretoria, 2000).

- British Medical Association (BMA). *Health and Environmental Impact Assessment*. (Earthscan Publications, London, 1999).
- Bruce, D. *The Operation of the Criminal Justice System in Dealing with the Violence at Anglo Platinum*. Research report written for the Centre for the Study of Violence and Reconciliation, April 2001.
- Bundy, C. *The Rise and fall of the South African Peasantry*. (London, Heinemann, 1979).
- Bykerk-Kaufman, A. "How Faults Shape the Earth in Yulsman", T. (ed) *Earth*, November 1992 (New York, 1992:62)
- Californian Environmental Protection Agency (EPA). *Determination of Chronic Toxicity Reference Exposure Levels: Draft for Public Review*. (EPA, California, 1997).
- Callinicos, L. *Gold and Workers, 1886-1924* (Johannesburg, Ravan, 1980).
- Campbell, K. "Mines need to lose the 'butcher-shop' tag" in Creamer, M. (ed.) *Martin Creamer's Mining Weekly*, Vol. 7, no.33, August 31 – September 6, 2001.
- Carruthers, V. *The Magaliesberg* (Southern Book Publishers, 1990).
- Chamber of Mines, *Mining Survey*, No. 2/4: 1986.
- Chamber of Mines of South Africa, *Facts and Figures, Industry Overview*, 2003.
- Chenga,C. Cronje,F. Naude, A. *Lonmin: Community Satisfaction Survey 2005* (G3 Business Solutions 2005:15)
- Clarke, J. *Coming Back to Earth, South Africa's Changing Environment* (Jacana, Sandton).
- Clarke V. *Hostel Initiatives: An urban reconstruction and development perspective*, Development Bank of Southern Africa, Policy Working Paper 8 (Halfway House: 1994)
- Coetzee, A. and Polly, J. (eds.): *Crossing Borders, Writers Meet the ANC*. (Taurus, Bramley: 1990).
- Coleman (ed) *Economic History of South Africa* (HAUM, Pretoria, 1983).
- Cote, W.A., Wade, W.A. & Yocum, J.E. *A Study of Indoor Air Quality*. EPA-650/4-74-042. (EPA, USA, 1974).
- Council for Scientific and Industrial Research (CSIR). *Guide on how to set up a Groundwater Management System in Rural Communities*. (CSIR, Pretoria, 1999).
- Courage, J. in Barber, N. (ed) *Platinum Moves From Cold to Cool*, in *Optima*, Vol 47, Number 2, September 2001.
- Creamer, M. "Why Sexwale is talking platinum with the Russians", in Creamer, M. (ed.) *Martin Creamer's Mining Weekly*, Vol 7 No 33, August 31- September 6, 2001.
- Creamer, M. (ed.) *Martin Creamer's Mining Weekly*, vol. 7 no. 33, August 31- September 6, 2001.
- Creamer, M. (ed.) *Martin Creamer's Mining Weekly*, vol. 7 no. 35, September 14 - 20
- Creamer, M. (ed.) *Martin Creamer's Mining Weekly*, vol. 7 no. 36, September 21- 27, 2001.
- Creamer, M. (ed.) *Martin Creamer's Mining Weekly*, vol. 7 no. 38, October 5 – 11, 2001.
- Crush, J. (ed.) *SPACES OF VULNERABILITY: MIGRATION AND HIV/AIDS IN SOUTH AFRICA* Series Editor: Jonathan Crush Southern African Migration Project Migration Policy Series No. 24
- Davenport, T.R.H. *South Africa a Modern History* (Macmillan, London, 1991).
- Davidson, A. *Cecil Rhodes and His Time*, (Progress Publishers, Moscow, 1984).
- Davidson, K. "Waiting for the Big One!" in Anderson, A. (ed.) *New Scientist* (26 March 1994, no 1918, London:24).
- Davidson, K. "Learning from Los Angeles" in Yulsman, T. in *Earth*, September 1994 (New York, 1994:40)
- Davis, D.L. & Saldiva, P.H.N. *World Resources Institute Environmental Health Notes*. (WRI, Washington, 1999).
- Davies, R.H. *Capital, State and White Labour in South Africa, 1900-1960* (Harvester Press, London, 1979).
- Department of Economic Development and Tourism, North West Province: *The Platinum Spatial Development Initiative, Executive Summary* (Mafikeng, 2002).
- Department of Environmental Affairs and Tourism: *An Environmental Policy for South Africa, Green Paper for Public Discussion*. (Government Printer, Pretoria, 1996).
- Department of Environmental Affairs and Tourism, Department of Water Affairs and Forestry: *Discussion Document Towards A White paper on Integrated Pollution Control and Waste Management*, May 1997, (Government Printer, Pretoria, 1997).
- Department of Environmental Affairs and Tourism: *White Paper on Environmental Management Policy for South Africa*, Government Gazette, Notice 1096 of 1997 (Government Printer, Pretoria, 1997)
- Department of Environmental Affairs and Tourism (DEAT). *National Core Set of Environmental Indicators for the State of Environment Reporting in South Africa*. Scoping Report. (DEAT, Pretoria, 2001).
- Department of Environmental Affairs and Tourism (DEAT). *National State of the Environment Report on the Internet for South Africa*. (www.grida.no/soesa/. 1999)
- Department of Environmental Affairs and Tourism (DEAT). *Guideline Document: EIA Regulations. Implementation of Sections 21, 22 and 26 of the Environment Conservation Act*. South Africa. (DEAT, Pretoria. 1998).

- Department of Environmental Affairs and Tourism (DEAT). *National State of the Environment Report on the Internet for South Africa*. 1999 <http://www.nwpg.gov.za/soer/fullreport/www.grida.no/soesa/>
- Department of Water Affairs and Forestry (DWAFF). *South African Water Quality Guidelines*. First Edition. Volume 8: Field Guide. (DWAFF, Pretoria, 1996).
- Department of Environmental Affairs and Tourism (DEAT). *Environmental Authorisations / Permits Required in terms of Environmental Legislation*. 2000. <http://www.nwpg.gov.za/soer/fullreport/www.environment.gov.za/docs/2000/licensingrequirements.htm>
- Department of Environmental Affairs and Tourism (DEAT). *National Core Set of Environmental Indicators for the State of Environment Reporting in South Africa: Scoping Report*. (DEAT, Pretoria, 2001).
- Department of Health, Directorate: Health Systems Research, *Research Coordination and Epidemiology: National HIV and Syphilis Sero-Prevalence Survey of women attending Public Antenatal Clinics in South Africa 2000* Dr Ayanda Ntsaluba Director-General: Health.
- Department of Labour, *Summary of the Green Paper on the Skills Development Strategy*, March 1997.
- Department of Minerals and Energy: *Green Paper Mineral Policy of South Africa* 3 February 1998
- Department of Minerals and Energy: *Mine Health and Safety Act No. 29 OF 1996*, 1996.
- Department of Minerals and Energy: *Mineral and Petroleum Resources Development Act*, 2002
- Department of Minerals and Energy, Mine Health And Safety, North West Region Circular 02/2006.
- Department of Water Affairs and Forestry (DWAFF). *A guide for the health related assessment of the quality of water supplies*. First Edition. (Inter-departmental Coordinating and Liaison Committee for Water Supply and Sanitation, Pretoria, 1996a).
- Department of Water Affairs and Forestry (DWAFF). *Water Law Review: Water environmental quality policy. Protection of water resources*. Submission of the Water Quality Policy Task Team. (DWAFF, Pretoria, 1997).
- Department of Water Affairs and Forestry (DWAFF). 1998. *Guide to Communities and their Groundwater Supply (North West)*, Edition 1. Directorate Water Services Planning, (DWAFF, Pretoria 1998).
- De Villiers, J.S. & Lee, C. A. (et al) *Precious Metal Resources of Southern Africa*, in Baker, G. (ed) *South African Journal of Science*, (Vol. 83 May 1987: pp270 –273).
- Döring, K. *Economic Empowerment. Paving the road*, (Halfway House, 2000).
- Duodo, C. "Africa. The Mercenaries must be stopped" in *New African*, October 2004, No 433 (IC Publication, United Kingdom)
- Economist, The. *The Good Company, Companies are exhorted to be "socially responsible", What exactly does this mean?* (London, January 22nd – 28th 2005).
- Environmental Justice Network Forum, *Environmental Justice Networker*, Quarterly Newsletter of the EJNF, (No 13, Autumn 1997).
- Environmental Protection Agency (US EPA). *Regulating Smog and Air Particle Pollution: An Integrated Approach*. 1997. <http://www.nwpg.gov.za/soer/fullreport/www.epa.gov/oar/oaqps/regusmog/infpart.html>
- Environmental Protection Agency (US EPA). *Indoor Air Quality - An Introduction: Organic Gases*. 2001. <http://www.nwpg.gov.za/soer/fullreport/www.epa.gov/iaq/voc.html>.
- European Round Table of Industrialists: *A Stimulus to Job Creation: Practical partnerships between large and small companies*. (ERT, Brussels, 1997).
- Evans, B. *JCI's Social Responsibility Funding: The Bophuthatswana Education Upgrading Programme*, in *Mining Survey*, (No. 2/4, 1986).
- Family Health International, *HIV/AIDS Overview*, 2005.
- Faubion, J.D. (ed) Foucault, M. *Power: Essential Works of Foucault 1954-1984, Volume 3*. (Penguin, London, 1994).
- Fauconnier, FJ. *A Challenging Year Ahead for the South African Mining Industry*, President, Chamber of Mines of South Africa - 12 March 2004
- Fearnley, C.J. *HIV and AIDS risk management at Rustenburg Section, Anglo Platinum*, [Applied Earth Science: IMM Transactions section B](#), Volume 114, Number 3, September 2005, pp. 146-153(8)
- Financial Mail, *The Giants: Patronage or Empowerment*, FM Survey, December 1, 1995.
- Fleisher, J.N.E. *The geohydrology of the dolomite aquifers of the Malmani Subgroup in the south-western Transvaal, Republic of South Africa*. Technical report GH3169. Directorate Geohydrology. (DWAFF, Pretoria, 1981).
- Foucault, M. *Discipline and Punish, the Birth of the Prison*, (Penguin, London, 1977)
- Frank, B. (ed.) *Leadership in HIV/AIDS* (Vol 1, issue 1, October 2004 (South African Business Coalition on HIV/AIDS)

- Frank, B. (ed) *Leadership in HIV/AIDS* (Vol 1, issue 2, December 2004 (South African Business Coalition on HIV/AIDS)
- Frank, B. (ed) *Leadership in HIV/AIDS* (Vol 1, issue 7, November 2005 (South African Business Coalition on HIV/AIDS).
- Freeman, M.J. Howard H.N.S & Wiechers, M.R. 2000. *The Management of Urban Impoundments in South Africa*, Volume 2, Guideline Manual. (WRC Report No. TT 119/00. WRC, Pretoria 2000).
- Galbraith, J.K. *The Economics of Innocent Fraud* (Allen Lane, London, 2004).
- Galbraith, J.K. *The Culture of Contentment* (Penguin, London, 1992).
- Gammage, R.B. and Kaye, S.V. *Indoor air and human health*. (Lewis Publishers, USA, 1987).
- Gay, N.C. and Jager, A.J. (1986) The influence of geological features on problems of rock mechanics in Witwatersrand Mines. In Mineral Deposits of Southern Africa (Anhaeusser, C.R. and Maske, S, eds.) Africa vols. 1&II, Geol. Soc. S. Afr., Johannesburg, 753-772.
- General Acts and Legislation (Pertaining to the mining Charter):
- The Preferential Procurement Framework Act (No 5 of 2000)
 - The Employment Equity Act (No 55 of 1998);
 - The Competition Act (No. 89 of 1998) (Also ref. To the Amendment Act No. 3S or 1999 and subsequent amendments);
 - The Skills Development Act (No. 97 of 1998).
- George, S. *The Debt Boomerang* (Pluto Press with the Transnational Institute, 1992).
- Godish, T. *Air Quality*. (Lewis Publishers, USA, 1997).
- Goffman, E. *Asylums, Essays on the Social Situation of Mental Patients and Other Inmates* (Penguin, Hammondsworth, 1978).
- Gooch, J. *The Unification of Italy* (Methuen & Co, London: 1986).
- Graedel, T.E. & Crutzen. P.J. *Atmosphere, Climate, and Change*. (Scientific American Library, USA, 1997).
- Groundwork Submission on National Environmental Management: Air Quality Bill, 30 MAY 2003
- Griesel, A. (ed) *The Shopsteward, Vol 4.1, Feb/March 1995* (Centre for Democratic Communications, Johannesburg, 1995).
- Griesel, A. (ed) *The Shopsteward, Vol 4.1, Dec '96/Jan 97* (Centre for Democratic Communications, Johannesburg, 1997).
- Grundlingh, L. *Aspect of early responses, attitudes and behaviour regarding HIV/AIDS in South Africa as reflected in the printed media, 1983-1988. Paper presented at the South African Historical Society 16th Biennial Conference, 6 – 9 July 1997.*
- Guerin, D. *Fascism and Big Business* (Monad, New York, 1973)
- Hamilton, G.N.G. *Geology for South African Students*, (Central News Agency, South Africa, 1960).
- Health, Safety and Environment (HSE). *Chemical Hazard Alert Notice*.
<http://www.nwpg.gov.za/soer/fullreport/www.hse.gov.uk/pubns/chan14.htm>. 2001
- Heller, J.E. (ed) *Problems and Solutions for Mine Surveyors Vol II, Part 1 Geology, Section 1 – "The effects of Faults and Dykes on Reef Bearing Areas."* by Harris Freedman (Hortors Ltd. Johannesburg, 1963).
- Hirschowitz, R. (ed) *Measuring Poverty in South Africa* (Statistics South Africa, Pretoria, 2000)
- Hooper, E. *The River, A Journey Back to the Source of HIV and Aids* (Penguin, London, 2002)
- Hunt, E.K. *History of Economic Thought, Updated Second Edition*, (M.E. Sharpe, New York, 2002).
- IMPLATS, *Annual Report, 2001*
- IMPLATS, *Annual Report, 2000*
- IMPLATS, *Annual Report, 1998*
- IMPLATS, *Corporate Responsibility Report, 2004*.
- IMPLATS, *Corporate Responsibility Report, 2006*.
- IMPLATS, Press Release, *Work stoppage extends to all underground employees at Impala*, 18 March 2003.
- IMPLATS, Press Release, *Response to queries: Work stoppage continues at Impala*, 19 March 2003.
- IMPLATS, Press Release, *Update at Impala*, 20 March 2003.
- IMPLATS, Press Release, *Impala work stoppage update*, 25 March 2003.
- IMPLATS, Press Release, *Update on work stoppage at Impala*, 25 March 2003.
- IMPLATS, Press Release, *Work Stoppage at Implats – update and financial implications*, 27 March 2003.
- IMPLATS, Press Release, *Work Stoppage has ended*, 31 March 2003.
- International Labour Organisation: ILO Report on the Social Impact of Globalisation.
<http://www.labour.gov.za/docs/reports/iloreport.html>

- International Organisation for Migration. *Mobility and HIV/AIDS in Southern Africa: A field study in South Africa, Zimbabwe and Mozambique* (IOM, Pretoria: 2003)
- Jackson, J.O. *Are Diamonds Still Forever*, *Time Magazine*, March 4, 1996, Vol. 147 No 10
- James, W.G. *Our Precious Metal, African Labour in South Africa's Gold Mining Industry, 1970 –1990* (David Philip, James Currey, Cape Town, 1992).
- Jeffery, A.J. *Conflict at the crossroads in Bophuthatswana*, (South African Institute of Race Relations, Johannesburg, 1993).
- Jones, JDF. *Through Fortress and Rock, The Story of Gencor, 1895 – 1995*, (Jonathan Ball Publishers, Johannesburg, 1995)
- Kane-Berman, J. *Soweto: Black Revolt, White Reaction* (Ravan, Johannesburg, 1979).
- Kane-Berman, J. *Political violence in South Africa* (South African Institute of Race Relations, Johannesburg, 1993)
- Kenny, R. "Fissures: Legacy of a Drought", in Zaburunov, S.A. (ed) *Earth*, May 1992 (New York 1992:34).
- Kerlinger, F.N. *Foundations of Behavioural Research* (Holt, Rinehart, Winston. London, 1972).
- Kinnimont, J. (ed.) *Africa Monitor, Southern Africa Vol 11. Issue 2, Feb 2006* (London: 2006)
- Kleynhans, C.J. *Procedure for desktop estimate of the water quantity component of the ecological reserve, for use in the national water balance*. (DWAF, Pretoria, 1999).
- Kotze, J.C., Dziembowski, Z.M. & Botha, L.J. *Schoonspruit Eye, District Ventersdorp analysis of rainfall, eye flow and water levels*. Drainage area C24. Technical report GH3842. Directorate Geohydrology. (DWAF, Pretoria, 1995).
- Kisting, S. in Bekker et al (eds) *Indicator, South Africa Vol 16, No.1 Autumn, 1999* (University of Natal Press, Durban, 1999)
- Kraak, G. *Breaking the Chains, Labour in South Africa in the 1970s and 1980s* (Pluto Press, London, 1993)
- Lace, W. "Research to improve miners' health and safety." In Creamer, M. *Martin Creamer's Mining Weekly*, vol. 7 no 36, September 21-27, 2001.
- Law, E. *Characterisation of Odour Patterns in Durban*. Unpublished BSc Honours thesis, (University of Natal, Durban. 1998).
- Law, E. *Quantification of the Human Health Risks of NO2 pollution in Johannesburg and Cape Town*. CSIR Report No. ENV-P-I 99010. (CSIR, Pretoria. 1999).
- Lawrence, P. "Conflicts of Interest" in Ingram, P (ed) *Focus*, Issue 23, September 2001: 2-6 (Helen Suzman Foundation, Parklands, 2001).
- Lewis, P. *Safety in Mines Research Advisory Committee (SIMRAC), Final Report, Housing and occupational health and safety in the South African mining industry, Part 2*. (CSIR Miningtek, Project no. SIM 020901, December 2003).
- Littler, C. "Deskilling and changing structures of control" in Wood, S. (ed) *The Degradation of Work? Skill, deskilling and the labour process* (Hutchinson Press, London, 1982).
- Lurie, M. *Migration and AIDS in Southern Africa: Implications for Asia*, South African Medical Research Council and The Africa Centre for Population Studies and Reproductive Health. Mark Lurie is PhD Principal Investigator, the Migration Research Project Brown University Medical School, Providence Rhode Island USA and The South African Medical Research Council, Durban South Africa (UNDP 2006).
- Lurie, M. Harrison, A. (et al) *Circular migration and sexual networking in rural Kwa-Zulu/Natal: implications for the spread of HIV and other sexually transmitted diseases*. *Health Transition Review*, Supplement 3 to Volume 7, 1997, 17-27.
- Madihlaba, T. *Communities and labour challenge the long standing tradition of protecting mining houses in South Africa*, EJNF Reports from the Provinces in Environmental Justice Networker, No. 14, winter 1997:11.
- Makhura, P. N. A "Good death?": *Rustenburg miners dying from HIV/AIDS*. etd-08162005-110210, M.A Thesis, (Johannesburg University, 2005).
- Manchester Metropolitan University (MMU). *Volatile Organic Compounds*. 2001.
<http://www.nwpg.gov.za/soer/fullreport/www.doc.mmu.ac.uk/aric/eae/AirQuality/Older/VO-Cs.html>
- McKay, D. *Who Owns the Land, Nasty Twists to Come in Mining Expropriation*, in *Finance Week*, 8 –12 November 2004.
- McNish J.T. *Adventures in Diamond Country: The Road to Eldorado: Kimberley 1867 – 1870*. (Struik, Cape Town 1968).
- McNish, J.T. *Adventures in Diamond Country, Graves and Guineas: Kimberley 1871-1873*. (Struik, Cape Town, 1969)
- Midgley, D.C, Pitman, W.V. & Middleton, B.J. . *Surface Water Resources of South Africa, Volume I, Appendices*. WRC Report No. 298/1.1/94. (WRC, Pretoria1994a).
- Midgley, D.C, Pitman, W.V. & Middleton, B.J. *Surface Water Resources of South Africa, Volume II, Appendices*. WRC Report No. 298/2.1/94. (WRC, Pretoria 1994b.).

- Midgley, D.C, Pitman, W.V. & Middleton. B.J. *Surface Water Resources of South Africa*, Volume III, Appendices. WRC Report No. 298/3.1/94. (WRC, Pretoria, 1994c.).
- Midgley, D.C. Pitman, W.V. & Middleton, B.J. *Volume III, Appendices*. WRC Report No. 298/3.1/94. (WRC, Pretoria 1994c.).
- Millin, S.G. *Rhodes*. (Central News Agency Ltd, South Africa. Kingstons Ltd. Rhodesia, 1933).
- Mining Survey, *South African Mining and Migrant Labour*, Mining Survey, No.2/4, 1986
- Msimang, R.W. *Natives Land Act 1913: Specific Cases of Evictions and Hardships, etc.* (Friends of the South African Library, Cape Town, 1996).
- Muller, E. *Quantification of the Human Health Risks Associated with Kerosene Use in the Informal Settlement of Cato Manor, Durban*. Unpublished MSc thesis (University of Natal, Durban. 2001).
- Murray, M.J. *The Revolution Deferred, The Painful birth of post-Apartheid South Africa* (Verso, London: 1994).
- Nel, Michelle. *Progress, Sustainable Development Quarterly* (Johnic Communications, Johannesburg, March 2006).
- Naude, W.A. *A New Economic "Marapo A Mokokotlo" for North West Province*, A Presentation to the North West Job Summit, 29 September 1999.
- Nel, P., P. van Heerden, M. Momberg, C. Newbery, R. Newbery & T. de Wet. 1995. *Report on the State of the Environment in the North West Province - Preliminary Survey*. North West Province Environmental Conservation. 48pp.
- North West Communication Service. <http://users.iafrica.com/n/nw/nwcs/> [August 2001].
Ori Dor & Ze'ev Reches, *Analysis of Fault Zones Associated with Large Earthquakes in South African Gold Mines* (Hebrew University, Jerusalem, Israel)
- Orkin, F.M. *Living in North West, Selected Findings of the 1995 October Household Survey* (Statistics South Africa, Pretoria, 1998).
- Orwell, G. *The Penguin Complete Novels of* (Penguin, London: 1983).
- Olsen, W. "Triangulation in Social Research, qualitative and quantitative Methods can really be mixed" in Holborn, (eds) *Developments in Sociology, 2004* (Ormskirk: Causeway Press).
- Pallett, J (ed) *Sharing Water in Southern Africa*. (Desert Research Foundation of Namibia: 1995).
- Pharoah, R. & Weiss, T. *Aids, orphans, crime and instability, exploring the linkages*. Institute of Security Studies Occasional Paper 107, June 2005. (Institute of Security Studies, Pretoria: 2005).
- Pillay in Wilmot (ed), *Mineworkers Shafted in Wilmot*, J. (ed) *Siyaya Issue 3*, (IDASA, Cape Town, Spring, 1998)
- Pool, J. and Pool, S. *Who Financed Hitler* (Futura, London, 1978).
- Preston-Whyte, R.A. & Tyson. P.D. *The Atmosphere and Weather of Southern Africa*. (Oxford University Press, Cape Town, 1993).
- Purvis. A. "*Dirty Diamonds*" in Time, June 26, 1995.
- Randeree. *Asbestos pollution - what needs to be done?* Unpublished report prepared for the Department of Environmental Affairs, Developmental Social Welfare and Health, (Northern Cape. 1998).
- Ransdell, E. and Lief, L. "*The familiar face of battle, In Angola an old American ally chooses civil war over democracy,*" in US News and World Report, May 3, 1993.
- Report of the Special Committee Appointed to Inquire into the Present Conditions in regard to the Control of Chinese Indentured Labourers in the Witwatersrand District (Johannesburg, Argus Printing and Publishing Company, Limited, 1906).
- Robbins, P. "*The South African Mining Industry After Apartheid*" in Suckling, J and White, L. (eds) *After Apartheid Renewal of the South African Economy* (James Currey, London, 1988).
- Rocky, V. *Corporate Social Investment and Development Handbook*, (Rivonia, BMI 1998).
- Rosenthal, E. *River of Diamonds*, (Cape Town, Howard Timmins, -)
- Rustomjee, Z and Fine, B. *The Political economy of South Africa; From Minerals Energy Complex to Industrialisation*
- Ryan, B. *Son of Ford* in Bruce, N. (ed) *Financial Mail*, (June 7, 1991:76)
- Ryan, B. *Empowerment Miner Gets Closer to JSE Listing: ARM and Anglo American Platinum finally sign deal*, in Bruce. N. (ed) *Financial Mail* (August 31, 2001:56)
- Ryan, B. and Kay, C. "*Mine water threatens world heritage site – and South Africa's precious water,*" in Nel, M. (ed) *Progress, The Sustainable Development Quarterly* (Johnic, JHB. Issue 8, 2006:44).
- Sachs, E. S. *The Choice Before South Africa*, (London, Trunstile Press, 1952).
- SANGONeT. *SANGONeT Health Portal*. <http://www.sn.apc.org/> (2001).
Saunders, I. South African National Seismograph Network (SANSN) FDSN Report 2005 Ian Saunders Council for Geoscience ians@geoscience.org.za
- Saul, J.S. "*Globalisation, Imperialism, Development: False Binaries and Radical Solutions,*" in Panitch, L. and Leys, C. (eds) *Socialist Register, 2004: The New Imperial Challenge* (Merlin Press, London, 2004).
- Schapera, I. *Migrant Labour and Tribal Life: A Study of Conditions in the Bechuanaland Protectorate*, (London, Oxford University Press, 1947).

- Schoofs, M. *All That Glitters, How HIV Caught Fire in South Africa -- Part One: Sex and the Migrant Miner*, April 28, (Pretoria: 1999)
- Schoofs, M. *A Woman's Work How HIV Caught Fire in South Africa -- Part Two* (Pretoria: May 12, 1999)
- Scot, J. *South Africa – centre of the Platinum Universe*, in Creamer, M (ed) *Martin Cramer's Mining Weekly*, Vol 7 no. 47 (December 7 – 13, 2001, Johannesburg)
- Segal, L. *The Human Face of Violence: Hostel Dwellers Speak* (Centre for the Study of Violence and Reconciliation, Johannesburg: 1991)
- Seidman, A. Seidman, R. Ndlela, D.B. Makamure, K. *Transnational in Southern Africa* (Harare, Zimbabwe Publishing House: 1986).
- Simonic, M. & I. Blecher. (in prep). *Geostatistical analysis of the National Groundwater Quality Monitoring Programme*. Report to DWAF, Pretoria.
- Simonic, M. *An assessment of ambient groundwater quality on a national scale in the Republic of South Africa*. Report to Water Research Commission. WRC project K5/841. (WRC, Pretoria, 2001).
- Skelton, P.H. *A Complete Guide to the Freshwater Fishes of Southern Africa*. (Struik Publishers, Cape Town. 2001).
- Smith, A. *An Inquiry into the Nature and Causes of the Wealth of Nations* (New York, Modern Library, 1937)
- Snaddon, C.D. & B.R. Davies. *An Analysis of the Effects of Inter-Basin Water Transfers in Relation to the New Water Law*. Freshwater Research Institute, (University of Cape Town, Cape Town, 1997).
- Sosibo, K. "Bakwena regent back on throne" in Mail and Guardian, November 3 to 9, 2006:13 (Johannesburg, South Africa)
- Spoor, R. "Traditional leaders spearheading South African resistance against Anglo Platinum" (Sunday Independent 19 May 2006, Johannesburg)
- Stober, P & Bain, J. *Why I left Anglo, Lazarus Zim*. In Sunday Times, Business Times, February 26, 2006: 1
- Terreblanche, S. *A History of Inequality in South Africa, 1652-2002* (Scottsville, South Africa, 2002).
- The South African Institute of Chartered Accountants, *Corporate Governance and HIV/Aids* (December 2004)
- Thomas, A. *Rhodes, The Race for Africa* (Johannesburg, Jonathan Ball, 1996).
- TOXNET. *Hazardous Substances Data Bank*. National Library of Medicine. toxnet.nlm.nih.gov/ (2000).
- Truswell, J.F. *An Introduction to the Historical geology of South Africa* (Johannesburg, Purnell, 1970).
- [United Nations Environment Programme, Industry and Environment](#) □ Environmental and Safety Incidents concerning Tailings Dams at Mines: Results of a Survey for the years 1980-1996 by Mining Journal Research Services; a report prepared for [United Nations Environment Programme, Industry and Environment](#) □. Paris, 1996, 129 pages [*compilation of 37 tailings dam incidents*]
- United Nations Environmental Programme, *Tailings Dams - Risk of Dangerous Occurrences, Lessons learnt from practical experiences*, Bulletin 121, Published by United Nations Environmental Programme (UNEP) Division of Technology, Industry and Economics (DTIE) and International Commission on Large Dams (ICOLD), Paris 2001, 144 p. [*compilation of 221 tailings dam incidents mainly from the above two publications, and examples of effective remedial measures*]
- U.S. Committee on Large Dams - [USCOLD](#), Denver, Colorado, ISBN 1-884575-03-X, 1994, 82 pages [*compilation and analysis of 185 tailings dam incidents*]
- Van Ginkel C.E. . *Reported Algal Scum in the Bospoort Dam*. (IWQS, DWAF, Pretoria, 2001).
- Van Ginkel C.E. *Water Quality in the Elands River and the Lindleyspoort Dam*. (IWQS, DWAF, Pretoria, 2001).
- Van Ginkel, C.E. *Potential health effects of the water quality in the Leeukraal Dam*. (IWQS, DWAF, Pretoria, 2001).
- Van Ginkel, C.E. & Conradie, B. *Potentially Toxic Algal Incident in the Orange River, Northern Cape*. (DWAF, Pretoria, 2000).
- Van Ginkel, C.E. *Olifantsnek Dam Fish Kill: Results of Sample Analyses and Measurements Taken*. (IWQS, DWAF, Pretoria, 2000a).
- Van Ginkel, C.E. *Assessment of the Water Quality in the Vaalkop Dam*. (IWQS, DWAF, Pretoria, 2000b).
- Van Ginkel, C.E., Hohls, B.C. & Vermaak, E. *Towards the Assessment of the trophic status of South African impoundments for management purposes: Bon Accord Dam*. (IWQS, DWAF, Pretoria, 2000).
- Van Ginkel, C.E., Hohls, B.C. & Vermaak, E. *A Ceratium hirundinella (O.F. Müller) bloom in Hartbeespoort Dam, South Africa*. (IWQS, DWAF, Pretoria, 2001).
- Van Ginkel, C.E., Hohls, B.C. & van Niekerk, H. *Pollution incident in the Roodeplaas Dam*. (IWQS, DWAF, Pretoria, 2000).
- Van Ginkel, C.E., Hohls B.C., et al. *Assessment of the Trophic Status Project Main Report*. (IWQS, DWAF, Pretoria, 2001).

- Van Ginkel, C.E., Silberbauer M.J. & Vermaak E. *The seasonal and spatial distribution of cyanobacteria in South African surface waters*. (IWQS, DWAF, Pretoria, 2000).
- Van Herpen, W. "Journey into Angola" in *New African*, March 1999, N:327 (IC Publications Limited, UK).
- Van Riet, Claassen, W. et al. *Environmental potential atlas for South Africa*. (J.L. van Schaik, Pretoria, 1997).
- Van Wilgen, B.W. Andreae, M.O. et al. *Fire in Southern African Savannas: Ecological and Atmospheric Perspectives*. (Witwatersrand University Press, Johannesburg, 1997).
- Van Wyk, S. *Giving South Africa the Tremors*, in *The Weekly Mail and Guardian* (Johannesburg, 20 August 2003)
- Walmsley, B. *State of Environment Report on Parks, Tourism and Biodiversity*. Namibian State of the Environment Report, 2000.
- Walmsley, J.J. Walmsley, R.D. & Silberbauer, M.J. *Chapter 3: Inland Water Resources*. In: Department of Environmental Affairs and Tourism (DEAT), *National State of the Environment Report on the Internet for South Africa*. www.grida.no/soesa/1999.
- Webster, E. *The Two Faces of the Black Trade Union Movement in South Africa*, in Baylies, C and Cohen R (eds) *Review of African Political Economy*, No 39, September 1987).
- Wilson, F. *Migrant Labour in South Africa*, (Christian Institute of Southern Africa, Johannesburg, 1972).
- Wittmann & Förstner, *Heavy Metal enrichment in mine drainage: I. The Rustenburg platinum mining area*, in Baker, G. (ed.) *South African Journal of Science*, Vol 27, August 1976:244
- Wolmarans, J.F. (1986) "Some engineering-geological and hydrological aspects of mining on the West Wits line." In *Mineral Deposits of Southern Africa* (Anhaeusser, C.R. and Maske, S, eds) vols. 1&II, Geol. Soc. S. Afr., Johannesburg, 791-796.
- World Bank, The. *Sub-Saharan Africa, From Crisis to Sustainable Growth, A long Term Perspective*. (Washington DC, 1989)
- World Health Organisation (WHO). *Potential Health Effects of Climate Change*. (Geneva, 1990).
<http://www.nwpg.gov.za/soer/fullreport/www.ciesin.org/docs/001-007/001-007.html>.
- Wuethrich, B. (1994) "Move Over, Andreas" in Anderson, A. (ed.) *New Scientist* (26 March 1994, no 1918, London:29).
- Xstrata, *Annual Report*, 2005.
- Yocum, J.E. *Indoor-Outdoor Relationships: A Critical Review*. *Journal of the Air Pollution Control Association*, 32: 1982.
- Zachariah, O. *Travel in South Africa*. (South African Railways and Harbours, 1927).
- Zagorin, A. "Soldiers for Sale" in *Time*, 26 May, 1997.