

mining rights to major mining companies or enter into joint venture agreements as black economic empowerment partners. Many such junior explorers do not have the resources to engage adequately with communities and because of their low public profile they 'fly under the radar' of civil society awareness and focus. Because exploration involves large investment with high risk of few returns, the small operators involved in exploration do not have the resources to employ environmental, social and biodiversity consultants. This means that they commence their actions in a context of a lack of appropriate knowledge and information about the environment, bio-diversity or social conditions in the area of their operations.

The Minerals, Petroleum Resources Development Act (MPRDA) does not contain sufficient penalties for non-compliance to environmental, bio-diversity and social requirements for prospecting. It is therefore cheaper not to comply with legislation. Most companies operating in the mining industry also realize that the Department of Minerals and Energy is seriously understaffed and frankly incapable of monitoring all the thousand of prospecting activities for which licences have been granted. Prospecting licences are obtained after the prospecting company has demonstrated that it has consulted with stakeholders. In communal or traditional areas this implies getting an agreement from the local traditional leader acting on behalf of the community, subsuming the constitutional rights of the individual.

Where Kgosis resist, as in Maandagshoek, the exploration companies haul them before the courts as demonstrated by papers served by Phokathaba Platinum (PTY) Ltd on Kgosi Isaac Kgoete, Michael Kgoete, Emmanuel Makgoga and Moima Lazarus (Sonnenburgs, 2008)

- **Development phase**

Mining has a continuous impact on the environment and on biodiversity through all its phases and even long after closure. It is during the development phase where decisions made lay the foundations for future mining operations and post-closure. The National Environmental Management Act (NEMA) and the Minerals and Petroleum Development Act (MPRDA) requires that mines do Environment Impact Assessments (EIAs), develop Environmental Management Plans (EMPs), obtain water use licences in accordance with the Department of Water Affairs and Forestry (DWAF) legislation and engage in community/stake consultation.

However, a major draw-back of the legislation is that **it does not require community/stakeholder consent.**

The research team has found the following **problems with the consultation process** as it is currently conducted:

- Often notices informing communities of the EIA process are posted on fences of the areas to be affected by the development of mining operations. This is an **inadequate means of information**.
- The notices are without exception **printed in English only**, regardless of the Constitutional commitment to nine official languages, and the fact that many rural people are not conversant with English.
- **Many community members are** either **illiterate or semi-literate** and can therefore not read such notices.
- Some community members allege that **meetings are held during working hours** and therefore only attended by the unemployed men and women and pensioners.
- Community members **lack the knowledge to understand the impact of mining** on bio-diversity and the environment and do not have the resources to hire experts to assist. Mining corporations on the other hand have extensive access to expert consultants.
- Local and provincial **government officials** attending such meetings often **side with the mining corporation**, keen to access corporate resources for local and provincial economic development, with little concern for the environment, bio-diversity or community rights.
- Direct biodiversity impacts are relatively negligible at first, but **increase with infrastructure development**.
- **Decisions are typically made by closed groups** focusing on financial and technical issues. The decision to grant the mining licence, for example, rests with the Department of Minerals and Energy in Pretoria and while communities may make inputs in the consultation process, their consent for the operation is not required. The corporation must merely demonstrate that it has consulted with them.
- Decisions often involve **potentially divisive actions**, such as community involvement in shareholding, royalties, employment, possible relocation and compensation.
- Companies have considerable power in the process and the constantly implied **threat of disinvestment** and investment migration to other countries with less strict regulations is used as a **form of blackmail** to pressure government officials into compliance with corporate wishes.
- There is often a **lack of tools, skills, information, incentives, penalties, rules or government capacity** to deal with biodiversity and environmental issues.

- **Operations phase**

Annual reports including CSR and CSI Reports focus mainly on operations when dealing with the impact of mining on the environment and biodiversity. The quality of reporting varies greatly with only Anglo Platinum reporting on incidents of non-compliance, clearly setting out targets, and evaluating performance against previous targets. Only Anglo Platinum and Implats make reference to the international environmental, social and labour conventions they ascribe to. However, despite the honesty of its reporting, Anglo is, by its own admission, under-performing in a number of areas at a number of its operations where this relates to its impact on the environment and biodiversity

Mining involves processing huge amounts of minerals and significant environmental change which is a direct impact. Nowhere is this direct impact more visible than at Anglo Platinum's PPRUst operations, 20 km north-west of Mokopane, smack in the middle of a number of traditional villages and farming communities. The impression is of a space age, almost Science Fiction operation clashing with a feudal farming community. The visible impact is enormous.

Picture 3: Impact of Anglo Plat operation north-west of Mokopane



Mining also involves more significant wider changes in financial, social, political and physical assets and power relations, which are indirect impacts. This is certainly the case in Mokopane where the corporation absolutely dwarfs the institutions of local and traditional governance. How these impacts affect biodiversity depends on management of the operations and the enabling environment they work within. At its head office and in the corporate literature emanating from Anglo Platinum, and also that of Implats with regard to

Marula Mine in Sekhukhuneland, there is a concern as reflected in policy with environmental and bio-diversity issues. Other corporations such as Platinum Australia and Nkwe Platinum are less clear about these issues.

It is concerning, however, that mining corporations realise and take into consideration that these impacts will be valued differently from different perspectives and that civil society structures such as non-governmental organisations (NGOs), community-based organisations (CBOs), faith-based organisations (FBOs) and environmental activists have not only a right but an obligation towards their constituencies to comment on the impact of mining on the environment, bio diversity and communities. It is also important that corporations treat these different perspectives with the earnest they deserve and shy away from reactionary or defensive responses.

In this regard Anglo Platinum's annual report, volume 2, 'a glimpse beyond' represents a breath of fresh air (Anglo Platinum, 2007). The research team was also pleasantly surprised by the accommodating attitude of Implats in a meeting between management and the CEO of the Bench Marks Foundation, organised by Mr Pierre Lourens early in April 2008. However, Anglo Platinum's response (Anglo Platinum, March 2008) to an Action Aid report (Curtis, 2008) on its PPRust Operation was rather disappointing in terms of both its tone and quality.

While the issues emanating from direct impacts are often clear and observable, responsibility for indirect impacts are unclear, multiple and complex as this report below will demonstrate.

- Operational Impact: a brief case study on water

Water is critical to a healthy environment and to sustainable biodiversity. Given that Anglo Platinum was one of only three companies to participate and engage in the research, this report comments in detail on their operations. However, despite the non-cooperation of the other mentioned companies, comments will still be made on perceptions about their activities as expressed by communities who are affected by their operations. In Limpopo there are two major observable environmental concerns; one is the **impact of mining on water**, while the other is the **impact of waste facilities on alternative land use**.

In 2007, it took 7.19 m³ of water to produce one fine ounce of platinum (Anglo Platinum, 2007, p. 82). The Constitutional Court found in its recent judgement in *Mazibuko and Others vs. the City of Johannesburg and Others*, that 6 kilolitres of free water in a family of 8 members was constitutional, but that in families with more than 8 members it was woefully inadequate (Sergeant, 2008). This implies that a family of 8 can survive with 72 kilolitres of water per annum. Implats' Marula operation consumed 3,536,662 kilolitres of water in 2007. The entire Implats operation consumed 34,504,825 kilolitres of water in 2007 (Implats, 2007, p. 125). This is equal to the annual consumption of 479 233.68 families per annum, or the

consumption of 3,833,869 individuals per annum. Clearly, the concerns of both communal and commercial farmers about the impact of mining on water resources are therefore well founded.

The mining operation at Angloplats PPRust operation and all other mining operations consume huge quantities of water annually. The impact of this operation on both ground water and surface water is well documented (Seccombe, 2008). Members of the community accompanied researchers to various water sources in close proximity to mine waste facilities and showed the decaying remains of dead cattle and dying cattle. It is alarming that communities use these same water sources for domestic use. Anglo Platinum dismissed the ActionAid report (Curtis, 2008) that high concentrates of nitrates in surface water around its PPRust operation were caused by mining (Anglo Platinum, March 2008).

Picture 4: Decaying remains of a dead cow next to a water resource in close proximity to PPRust waste facilities



In Mothlotlo and surrounding villages that are designated for relocation, community water resources were rendered unusable and dismantled for “relocation”. Communal property became Section 21 property and those who did not join the section 21 or resisted relocation suddenly found themselves without running water and other water resources. When communities approach Anglo Platinum concerning these actions it refers them to the Section 21 Company. When they approach the Section 21 Company they are referred back to the mine.

At a meeting called by the Waterberg District Municipality on 10 April 2008 at the Park Hotel Mopane Hall involving the Municipality, Anglo Platinum and ActionAid with the purpose of answering issues raised by a recent Action Aid report on water in the area Angloplats

mentioned that the provision of clean potable water was not its responsibility but that of local government. The company and the municipality also lined up experts from the Department of Water Affairs to show that the pollution in the water was not mine-related but caused by pit latrines (Anglo Platinum, March 2008).

Picture 5: Dying cow next to water resource near PPRUst operation waste facilities. Gapila River



Yet, Anglo Platinum's response is contradicted by its own annual report which documents frequent spills of nitrates. Anglo Platinum states that "The water discharged typically has a neutral pH and elevated nitrate, sulphate and chloride concentrations, but at current discharge concentrations these do not pose a danger if consumed by livestock or humans." Then comes the contradiction, "**Spills and accidental discharges occurred during the year at many operations** due to the overflow of tailings return water dams and pollution-control dams, as well as pipe breaks on potable and process water and tailings dams" (Anglo Platinum, 2007, p. 89).

In the dispute between Anglo Platinum and ActionAid on this matter it is again a case of who pays the consultant in terms of the result that will be achieved. This once more emphasises the **need for independent monitoring**.

It is the impression of the research team that, noting that the location of the water source in the pictures 6 and 7 is just below a massive mine waste facility which straddles the stream valley with no pit latrines higher than the stream elevation nearby, Anglo Platinum would find the condition of the cattle in the picture difficult to explain. If domesticated animals are dying, the impact on wild fauna and flora in the biosphere must be immense.

Picture 6: Mine waste facility directly above two windmills that used to belong to the community and above the stream with dead and dying cattle - Gapila River



There seems to be a **lack of capacity in government** in all spheres to regulate, monitor, manage and control the impact of mining on the environment and bio-diversity. Interestingly, the researchers came across the pit latrine explanation in a coal-mining area of Mpumalanga as well, where they encountered a sick farmer, whose animals were also dying. The nearest pit latrine to this commercial farmer's source of water was between 15 and 20 km away.

In proper consultation with communities prior to the commencement of mining, the impact of a mining operation on water resources should be spelt out clearly. From researchers' experience of these consultation meetings around EIAs and EMPs, the **negative impacts are always underplayed** by mining corporations. The impact assessments are often done by consultants who are in the pay of the mining corporation. The consultants are therefore less than honest in their assessments. Local, Provincial and National Government and departments do not have the capacity to independently assess the water use claims by mining corporations. Local communities also lack the knowledge concerning the impact of mining to be able to contest the claims of corporations during consultations. As already mentioned, even if communities are consulted, the legislation does not require community consent or refusal. Corporations only have to show that they did consult and not that the community approved.

Anglo Platinum admits impacting on the following rivers, either **drawing water from them** or **discharging mine water into them**: the Dwars River; the Raphole River; the Crocodile River; the Klipfontein Spruit; the Hex River and the Bierspruit. The sustainable development report then adds this very interesting rider: “The water-monitoring and management programmes are integral parts of the integrated water-use licence applications submitted to the Department of Water Affairs and Forestry (DWAF), **most of which are awaiting approval**” (Anglo Platinum, 2007, p. 89).

Noting that the PPRust operations, the Rustenburg operations and the Burghersfort/Sekhukhune operations of Anglo Platinum are long existing operations, one wonders why the applications for water licences have only been made in 2007. Does this mean that these mines consumed and polluted water without regulatory control prior to 2007? How is it that DWAF has not dealt with these issues under the offices of Minister Asmal and Minister Kasrils when they were in control of DWAF? Or perhaps the DWAF ministers, including the current incumbent is too afraid to tackle issues relating to the senior DME?

With regard to waste facilities, Anglo Platinum has 24 tailings dams, of which 16 are active. The corporation reports that *“Pre-control risk assessments indicate seven dams with a high risk of loss of life should they fail. However, post-control risk assessments indicate medium risk at five dams only. The identified risks at these dams are potential excessive dust fallout and not loss of life”* (Anglo Platinum, 2007, p. 91). It was noted in The Policy Gap that the insurance industry in South Africa refuses to insure tailings dams and that these dams pose the biggest risk to communities globally, with well recorded cases of disastrous failure both globally and in South Africa. It is almost impossible to monitor seepage from tailings dams into underground water, and noting the size of these waste facilities and the volume of their content relative to pit-latrines for example, it is hard to imagine that their impact on ground and surface water is minimal.

- **Mine closure phase**

None of the annual reports under review refer to matters relating to mine closure, the environment and bio-diversity. All mines in South Africa are required to submit detailed closure plans including financial arrangements for such plans. The environmental mess around the many closed mining operations in Gauteng and the impact of these on water, air and surrounding communities is a stark reminder of **how not to manage mine closures**. It also serves as an example of what could happen to communities in Limpopo if planning for closure is not done properly now. Clearly, closure plans once submitted to the Department of Minerals and Energy should not remain static, as inflationary pressures will inevitably make the projections of such plans redundant if not continually updated. Closure plans should not represent a fixed document, but a **continuous process** as the factors that informed such

plans when they were drafted continues to change. It should also be accepted that the impact of mining on the environment and bio-diversity will continue long after closure, as can be seen from the controversy around Wonderfontein spruit on the West Rand, where the Cancer Association of South Africa has warned that people should wear masks on visiting the area due to the **heavy radioactive pollution** of the area (Temelhoff, 2008).

The case of closed mines around Johannesburg also demonstrates that the responsibilities for post-mining activities, management and use are unclear. Corporations might well point to the fact that new legislation clarifies roles and responsibilities. However, the political, social and economic future and legislative environment of any country, including South Africa, is unpredictable. It is also clear from global examples provided by mining operations, particularly in the Third World that in countries where minimal legislation or controls are in place, corporations will attempt to get away with murder.

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

Anglo Platinum, Implats, Xstrata and Lonplats all have company-wide environmental codes. The Annual General reports, CSR/CSI reports of the emerging or junior companies are so poor that it is hard to tell whether or not they have any. Nkwe Platinum's Shariff Pandor responded to the questionnaire by stating that, because his company does not yet have any operations off the ground, they cannot complete the questionnaire. Clearly from this response this company seems to have obtained exploration and mining licences without submitting environmental management plans for their operations.

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

Anglo Platinum, Implats, Xstrata and Lonplats all employ either full-time environmental experts or environmental consultants who regulate and assess environmental issues and who report on such matters in annual reports. Anglo Platinum has by far the most detailed reports on its environmental impacts. The reports of companies such as African Rainbow Minerals (African Rainbow Minerals, 2007, p. 91) Nkwe Platinum (Nkwe Platinum, 2007) and Platinum Australia Limited (PLA) are all glaringly lacking in content when it comes to environmental issues.

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. Rather they are reported as corporate assets in terms of prospective profits and dividends. The companies under review also do environmental assessments and environmental management plans as required by South African law. The reporting on these assessments and plans are rather uneven and the extent to which affected stakeholders and communities are involved in the development thereof varies to a large extent. There is need for the creation of an independent assessment capacity in the country to monitor and verify reports and plans produced by mining corporations.

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 minimum, internationally recognized standards and include data for each facility (1.1.C.5)

The mining corporations under review do produce environmental performance reports and future targets as part of the sustainability/social responsibility reports that are part of their annual reports. However, the quality and detail of these reports vary from company to company. In terms of quality and detail the Anglo Platinum report is by far the best report, followed by Implats, Lonplats, and Exstrata. The quality of reports from companies such as African Rainbow Minerals, Nkwe Platinum and Platinum Australia is so poor as to be useless. Most reports provide a general overview of the corporation's environmental performance and future plans without referring to the specifics of each operation.

Subsequently a **case study** will be presented regarding the impact of mining on water resources in Limpopo and Mpumalanga

- **Anglo Platinum and water in Limpopo - The damming (commodification) of water in Limpopo and Mpumalanga, corporate externalising costs**

Anglo-Platinum has teamed up with the Department of Water Affairs and Forestry (DWA) and other mining companies active in the eastern limb of the Bushveld Complex in Limpopo, to secure essential water resources for its operations to construct dams in this water scarce area so as to facilitate mining.

Local communities, South African National Parks and key NGOs **have protested the construction of these dams**, but to no avail. They have argued that the project **violates national and international laws** and **pits ministries against each other**. "It will boil down to which department has the most political clout", according to Nick King, executive director of the Endangered Wildlife Trust (EWT), which rejects the dam building project. "Water affairs' mandate is the delivery of water, environmental affairs must conserve the resource base and

SANParks protects biodiversity” (Macleod, 2006). The Department of Environmental Affairs **submissive to its “senior” department** (Minerals and Energy) backed down in agreeing to the construction of the dams, despite the opposition of environmental groups.

Construction started on the De Hoop dam in April 2007, following the final go-ahead from the Department of Environmental Affairs and Tourism in October 2006 after a lengthy appeal process. Despite all Anglo’s claims to be environmentally concerned, it **never considered withdrawing from supporting the construction of these dams, as profits seem to come first.**

The appeals (by NGOs and communities, etc.) focused mainly on the impacts of damming on downstream users and ecosystems. Downstream users include farmers and traditional communities. The dams **will deprive them of water.**

DWAF will spend some R5 billion on constructing the De Hoop dam and associated infrastructure. Anglo-Platinum will sign a memorandum of agreement with the department and the other mining companies stipulating that costs incurred to construct the dam will be repaid over a 20-year period through an agreed escalated water tariff. While Anglo-Platinum and the government claim that the dam will service more than 21 mining companies and approximately 1 million people in several towns and rural communities in Limpopo, including Polokwane and Mokopane, EWT in its appeal against the dams asked: *“How will domestic supply be guaranteed? **No evidence is provided that local communities will receive water, let alone be able to pay for it**”* (Macleod, 2006). Mining corporations often shift the costs of their operations to the poorest of the poor, regardless of the polluter or consumer pays principle. In Mpumalanga, Anglo coal has constructed a major water purification plant to clean up water that the mining industry has polluted and then to sell the cleaned water to local governments and communities in the affected areas. Clearly, the funds mining corporations and DWAF will be spending on the water projects in Limpopo will be recovered through the **commodification of water.**

Construction is expected to be completed by 2011 with the De Hoop dam fully operational by 2015. Based on the growth pattern for mines in the area, Anglo Platinum has projected a shortfall of water in the De Hoop dam by 2012/13, as the dam will still be in the filling phase. Anglo-Platinum is therefore considering building a dam on Richmond farm as an additional water source, both to alleviate the projected shortage and for long-term water provision to the mine. An environmental impact assessment is under way and focus group meetings with stakeholders are being held to mitigate concerns on the proposed dam and ensure all concerns and impacts are appropriately managed. These consultative meetings with communities and those affected by mining are **largely ceremonial** as the outcomes of such meetings are not binding. These meetings are also problematic given that there is usually a

severe **imbalance of knowledge, power and resources**, with poor, often semi literate and powerless communities having to face off some of the wealthiest and most powerful mining corporations in the world. The Ga Mawela community has voiced its disapproval of the dam's construction (Anglo Platinum, 2007).

Potable water is sourced from parastatal utilities. Non-potable water use at managed operations is low and comes from various raw-water sources. The key supplier of non-potable water in the eastern limb is the Lebalelo pipeline, for which water is extracted from the Olifants River. As noted elsewhere, environmentalists are extremely concerned about the impact of mining on the Olifants River. Grey water is sourced from municipal sewage plants to supply process water to some operations, notably PPRust and Rustenburg section. No surface water is used by any operation. Rainwater collected in the open pit at PPRust and used is, however, included in the surface water parameter. The groundwater parameter includes groundwater from boreholes used for primary and non-primary activities, as well as fissure water from underground operations where this can be measured (Anglo Platinum, 2007).

Anglo Platinum claims that there are no water sources or related ecosystems (such as Ramsar-listed wetlands) or habitats which are significantly affected by the Group's extraction and use of water. However, Vera Ribeiro, coordinator of the Mozambican environmental NGO Geosphere expressed concern not only about the quantity of downstream water on the Mozambican side, but that **chemical pollutants and heavy metals from mining would affect water quality** (Macleod, 2006). The Steelpoort River feeds into the Olifants River which in turn flows into Mozambique.

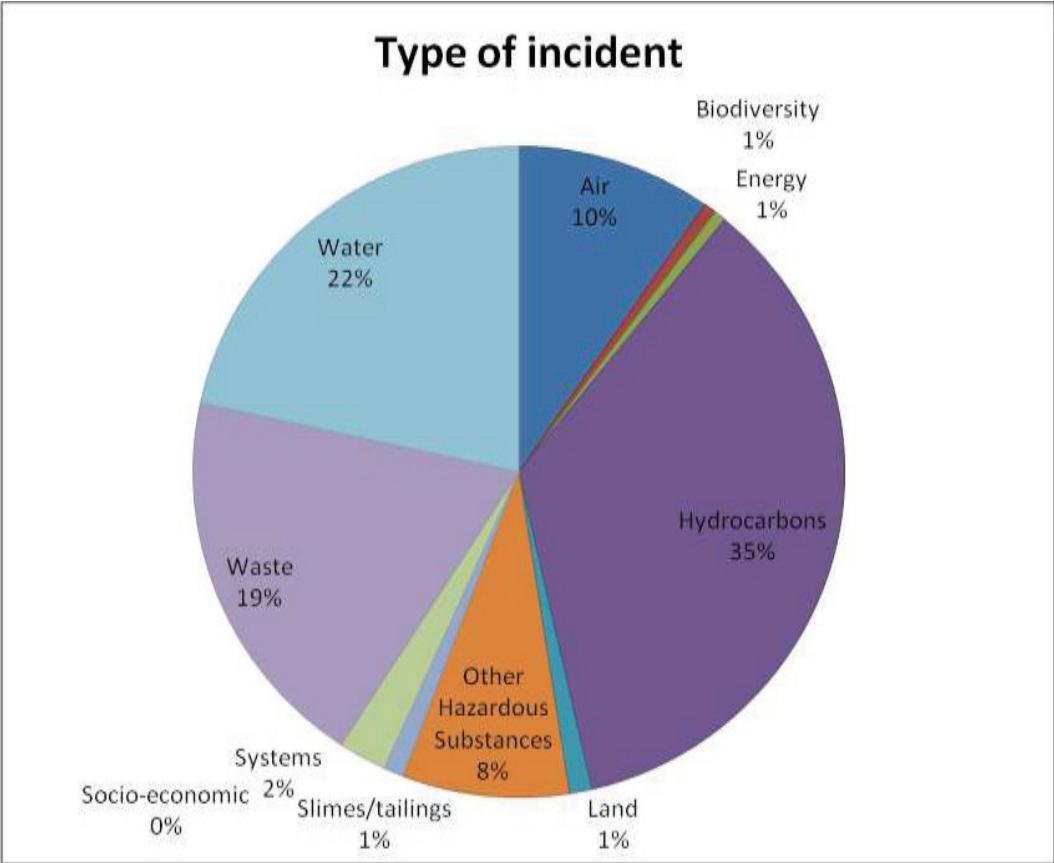
Ironically, the EWT added, environmental affair's own research had identified the Sekhukhuneland region as one of **nine national conservation priority areas**, because of its high biodiversity and ecosystems service value. **At least 20 types of plant found nowhere else on Earth will be flooded by the 1 700 ha dam, along with at least 20 animal and reptile species already threatened with extinction** (Macleod, 2006).

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)

The major mining companies such as Anglo Platinum, Implats, Lonplats and Xstrata all set out water and energy consumption targets as well as emission and spillage controls. Anglo Platinum must be singled out as the only company that reports actual incidents, with the

seriousness ratings of these incidents as well as actions taken. Clearly there are insufficient reporting protocols set by DME regulations to oblige other corporations to report adequately on environmental impact and damage. Anglo reported the following level 1 environmental incidents at its plants for 2007 (Anglo Platinum, 2007, p. 92):

Figure 6: Reported environmental incidents at Anglo Platinum operations 2007



Source: Anglo Platinum (2007)

The reporting of environmental incidents is left to corporations. The relevant government departments lack the capacity to keep track of the rapidly expanding operations of the mining industry in the country. Most corporations also do not feel impelled to make reference to incidents in their annual reports. All reports lack detail as to incidents related to particular phases of the mining process. Where communities complain about cracked housing, dust pollution or water pollution all the corporations are quick to appoint ‘independent experts’ who almost invariably find in favour of the mining corporation and against the complainants. This is understandable as the ‘independent experts’ are always paid for by the mining corporation.

Do 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)

The bigger more established mining corporations do indeed, in so far as it affects their direct operations and their specific seepages and emissions. The annual reports of Anglo Platinum, Implats, Lonplats and Xstrata do refer to targets to be met. However, it is unclear who will assume responsibility for the cumulative impact of mining operations caused by many corporations in a relatively small geographical area such as Burghersfort/Sekhukhuneland. Who assumes responsibility for those mining-induced pollution or disaster impacts that cannot be attributed to a single operation? Why are insurance companies reluctant to insure mine waste facilities such as tailings dams?

Do the mining corporations under review make periodic environmental assessments that include but are not limited to:

- **Environmental impact;**
- **Physical infrastructure impact;**
- **Social infrastructure impact;**
- **Cumulative (synergistic) impacts? (1.1.B2.)**

Interestingly, the statement of assurance in the Implats Corporate Responsibility Report dated 6 August 2007 notes the following shortcomings in the Implats assessment processes:

- Corporate reporting definitions and criteria were not clearly defined or communicated to sites, resulting in inconsistent approaches to data management which required rectification prior to reporting;
- No formal periodic, internal verification processes were in place to allow for the identification and resolution of data errors or anomalies; and
- Unclear reporting lines, with respect to non-sustainability performance data management resulted in uncertainty about the individuals ultimately responsible for information reported by Implats (Triologue Assurance Services, 2007).

Clearly this qualifying rider makes much of the environmental impact data contained in the report seem fairly suspect. For example, if there are no formal periodic, internal verification processes, data relating to emissions, effluents and waste contained in the report can be questioned.

The different topics mentioned in the question above will subsequently receive some attention.

- **Environmental impact**

The mining corporations under review do indeed make periodic impact assessments. These are reported in the CSI/CSR components of annual reports. However, as already mentioned the reporting varies to a large extent with the reports of particularly new, emerging or junior mining corporations leaving much to be desired. Direct visible impacts are generally reported. Thus Anglo Platinum owns, leases or has surface rights over 51, 335 hectares of land, of which 29%, or 14,778 hectares, is altered for mining activities (Anglo Platinum, 2007, p. 84). Implats reports increases of sulphur dioxide (SO₂) emissions; increases in total water consumption increased by 11,7%; total energy consumption increased by 0,6% (Implats, 2007, p. 41).

- **Physical infrastructure impact**

The mining corporations generally give a positive slant to their physical infrastructure impacts, noting the number of roads they have constructed, referring also to clinics or hospitals and schools. However, physical infrastructure also has a negative impact. Thus access roads to exploration and mining sites result in increased dust levels in the air. Increased mine vehicle traffic on these roads lead to increased road accidents and pose a threat to humans and animals alike. Increased water consumption to control dust and for other mine activities deplete scarce local water resources. Waste facilities such as tailings dams and rock waste facilities pose increased disaster and pollution risks. The surface and underground operations require massive infrastructure in terms of structures and buildings which in turn require huge quantities of energy.

- **Social Infrastructure impact**

All mining corporate CSR/CSI reports place great emphasis on the number of schools, roads, clinics, hospitals, houses and sport facilities they construct on behalf of communities and show how they fit into local economic and infrastructure development programs. Except for the construction of housing, schools and infrastructure related to relocations, the rest of this development has little to do with the impact of mining. The quality of this infrastructure is often questionable. Thus Anglo Platinum reports that “Residents of Mecklenburg, who where (sic) relocated in 2005 from Twickenham, raised concerns about the quality of infrastructure” (Anglo Platinum, 2007, p. 74). The researchers found complaints about the quality of building materials and of house structures in both Armoede and Mecklenburg.

However, at both its PPRust and Twickenham operations, Anglo Platinum also destroyed housing, water, education and other infrastructure ostensibly to be relocated to Armoede and Mecklenburg. This process of destruction effectively deprived community members, who refuse to move, of services, in effect making things so uncomfortable for them that they are also forced to move in the end.

- **Cumulative impacts**

Corporate mining reports are incredibly poor when it comes to cumulative impacts, including cumulative geological impacts, hydrological impacts, impacts on the biosphere and atmospheric impacts. On 17 May 2008 radio 2000 news at 6pm (FM 94.5) reported that people along the Olifants River were consuming river water not fit for human consumption. The water quality is suspect because of upstream mining activity. Local communities are unable to consume the water in their boreholes due to the salinity of this water. Anglo admits that at its operations, groundwater contamination increases the salinity of the water as a result of seepage from tailings dam complexes (Anglo Platinum, 2007, p. 89).

Do the mining corporations under review have policies which include performance standards relating to the:

- **Protection of the biosphere;**
- **Sustainable use of natural resources;**
- **Reduction and disposal of waste;**
- **Reduction of anthropogenic greenhouse 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 public? (1.1.B.3)**

Subsequently some of these different topics regarding CSR policies and performance standards will be discussed.

- **Protecting the biosphere**

The global commodity boom with regard to minerals prices, particularly of oil, platinum, gold and uranium, has seen a massive increase in mining operations globally, in Africa and in South Africa. We have already pointed out numerous reporting weaknesses concerning the operations of South African corporations. While individual corporations may do their best to minimise the impact of their operations, no one is monitoring the cumulative impact of the industry on the biosphere in South Africa. The Department of the Environmental Affairs and Tourism is ready to wash its hands of the impact of mining on the environment, while environmental NGOs are stretched and faced with hostility from both the industry and responsible government departments.

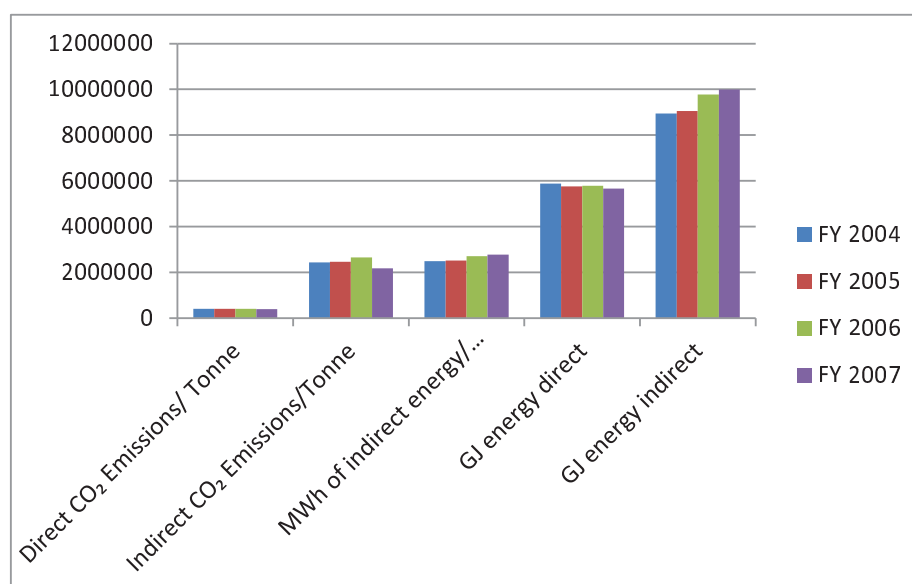
- **Sustainable use of natural resources:**

The major mining corporations do indeed report on their use of water and energy and their impact on air pollution, as well as on the huge quantities of land they impact on. Most of this

land in Limpopo and the North West Province used to be agricultural land – land lost to food production at a time when global food prices are spiralling out of control. The question is at which point will the opportunity cost of doing mining so outstrip the opportunity benefits that governments actually decide that agricultural growth and development is better than investment in mining? Mining is contributing greatly to the destruction of both surface and ground water resources all over South Africa. Water is an essential resource for the sustainable habitation of South Africa. The alarming impact of gold and uranium mining on the Wonderfontein spruit, and the emerging impact of Platinum mining on a number of water sources in Limpopo must bring into question the long-term sustainability of mining in South Africa.

Platinum mining and the processing of the mineral consumes huge amounts of fossil fuels in the form of coal and diesel leading to massive CO₂ emissions. Thus Anglo Platinum reports direct CO₂ emissions generated internally per refined ounce of precious metal from managed operations increased 108 kg in 2006 to 120 kg in 2007. This calculation excludes uncontrolled and non-managed emissions such as those caused by sub-contractors and transporters. Coal is transported from coal suppliers in Mpumalanga to Polokwane, Mortimer and Waterval smelters by huge trucks. Apart from the destruction of national, provincial and local road infrastructure, a negative impact on road safety, the CO₂ emissions from these diesel-thirsty vehicles must be huge. This excludes the diesel burnt by monstrous tipper and water vehicles in open cast operations.

Figure 7: Carbon Dioxide emissions by Implats



Source: Implats (2007, p. 48)

In the figure above, direct CO₂ emissions refers to coal, diesel and petrol consumed. Indirect CO₂ emissions refer to that resulting from purchased electricity. GJ =Gigajoules (unit of energy measure). There are three problems with the data above. Firstly, the data for direct GJ energy consumed excludes numbers from Implats' Mimosa operations and the data for indirect GJ consumed excludes data from Implats' Marula operations as comparable data for fuel consumption could not be provided. Secondly, the independent statement of assurance gives only a qualified approval for Implats' sustainability performance indicators. Thirdly, the independent statement of assurance is dated 6 August 2007, which means that the data for the rest of 2007 is either not included or verified (Implats, 2007, p. 8).

During a field visit early in March 2008, the research team observed that electric lights burned all day and night at mining operations in Sekhukhuneland, including Twickenham (Anglo platinum) and Marula (Implats). This was days after the Minister of Public Enterprises, Alec Erwin, announced that mines were 'setting the example' in terms of saving on their electricity consumption. Interestingly, one of the researchers witnessed a similar phenomenon mid-morning at Sishen iron mine in the Northern Cape early in May 2008.

Platinum mining operations are also major emitters of SO₂, particularly from their smelters. SO₂ emissions at Anglo Platinum's Polokwane smelter decreased by 9% from 6.78 kt in 2006 to 6.18 kt in 2007 due to lower production during 2007. On average, 17 tonnes per day were emitted against the scheduled process registration certificate limit of 25 tonnes per day. SO₂ emissions at Mortimer Smelter increased by 77% from 3.57 kt in production from this smelter in 2006 (Anglo Platinum, 2007, p. 87).

- **Reduction of disposable waste**

The major mining corporations reviewed have massive tailings, slag and rock waste facilities. Anglo Platinum reports that its Klipfontein tailings facility is being reprocessed through the Western Limb Tailings Retreatment plant. This corporation and Implats also reports that their rock dumps are a resource in many areas where they are used for aggregate production, with HDSA companies being given contracts to process this waste rock. Anglo Platinum also reports the possible re-use of slag to pave roads (Anglo Platinum, 2007, p. 91). Unfortunately, smaller mining companies and juniors do not report any efforts at the reduction of disposable waste.

- **The development of renewable and alternative energy sources in place of the reliance on fossil fuels.**

In a meeting between the management of Implats and the CEO of the Bench Marks Foundation, the company indicated that they were seriously considering the possibilities offered by bio-diesel, both in terms of the production thereof, using surface mine land, and the consumption of bio-diesel in mining operations.

A perplexing matter is also why mining corporations have not considered the use of self-generated geo-thermal energy, harvesting heat from deep-level mines. Geo-thermal electricity has no negative harmful environmental impacts and is low cost.

10.2.3 Social dimension

Do the mining corporations recognize that the presence of the platinum group metals (PGM) within Limpopo is an asset to the communities on whose land it is found within that province? (1.1.C.3)

South African mining law unfortunately does not recognize this principle, even if the Richtersveld case referred to below does. The value of the mineral resource far outstrips the compensation which communities receive for the loss of their land and homes. While they are 'relocated' to new housing, the planning of the **new housing complexes do not take into consideration traditional spatial arrangements concerning the location of housing according to authority, status, gender, socio-cultural or traditional economic precepts of traditional communities**. It is clear from the layout of Armoede, a relocation area, that very little anthropological research was conducted prior to the relocation.

Picture 11: The zinc shack on the cover of Angloplats' response to ActionAid



Angloplats' public response to sections in a recent Action Aid study dealing with housing leaves much to be desired. The cover of the Anglo document (Anglo Platinum, March 2008) shows a zinc shack in Mothlotlo and a beautiful five-bed roomed house in Armoede on the cover. The caption creates the impression that housing in Mothlotlo was generally of an

inferior 'shack' quality, and that housing in Armoede would be so much better. This is appalling propaganda of a very poor kind. Researchers have found that there are less than five zinc shacks in Mothlotlo and that most houses still standing are brick houses of a quality far superior to anything found in most South African townships.

Picture 12: What the person in the zinc shack could really hope for in Armoede



From the ruined remains of demolished houses it is clear that there were also proper brick and mortar structures constructed on sound foundations. What is more, people in Armoede do not all live in four or five-bed roomed houses. If a person had one room in Mothlotlo they are given one room in Armoede when they are relocated.

Picture 13: The truth is; average housing in Mothlotlo is not zinc shacks!



The quality of relocation housing, while seemingly impressive from afar, is far from impressive on closer inspection. Researchers found poor foundations, cracked walls and floors, non-functional toilets and taps with frequently interrupted running water (which has been commodified).

Picture 14: Cracks in the floor of 3-months old relocation house in Armoede - are these cracks an indication of a policy gap?



The impression from all the above is that Anglo Platinum, despite its protests to the contrary (Anglo Platinum, March 2008), **sees the community as an irritant to the rapid development of its mining operations in the area, rather than as a community whose mineral assets they are mining.**

The community 'shareholding' in the project rests with the Section 21 Company. This shareholding is paid through a debt arrangement linked to a major percentage of dividends, to be paid back to Anglo Platinum. Shareholding does not always cause wealth to trickle down to ordinary people belonging to the community as the Bench Marks report Policy Gap shows with regard to the Bafokeng in Rustenburg (The Bench Marks Foundation, 2007). The community is paying Anglo Platinum for the privilege of mining a mineral that was found under the land of the community. It is interesting how mining companies are quick to invoke the Property Clause in the Constitution when their property rights are considered to be threatened, yet ride rough shot over the property rights of traditional communities. The Section 21 Company is also reported to have incurred huge debts with Anglo Platinum in the process of relocating the Mothlotlo community to Armoede.

The perceptions indicated above were echoed in a video-recorded interview with an elderly relocated resident of Armoede.

The process of relocating graves has also left many bitter in the community. Angloplats funds the relocation of graves; the Section 21 Company manages the process by subcontracting it. Members of the community are given a pittance for the relocation of each grave. Community members mentioned amounts of between R1 000 to R5 000 per grave. Community members hoped to get around R10 000. Relocating a grave requires due consideration for both Christian and traditional values and observances. The spatial arrangements around graves, the quality of tombstones and the rituals to be followed including the slaughter of animals are all costly considerations. Visits to new relocated cemeteries suggest that none of the above has been taken into consideration and that very little anthropological research and planning went into the relocation of graves. This is a matter of grave concern for communities who worship their ancestors.

Picture 15: Corporate respect for those passed away. A grave marked for relocation



Picture 16: Section 21, Funeral Services Community meeting, Sekuruwe Village, April 2008



Researchers attempted to attend a meeting between the Section 21 Company, the funeral company subcontracted to do the relocation of graves and the community in April 2008. The majority of people attending the meeting were pensioners and women. In interviews with community members it became clear that Anglo Platinum and/or the Section 21 Company deliberately schedule meetings on week days. Most men in the community are either migrant workers working in Gauteng or hold down daily jobs in Mokopane. Major decisions affecting communities, such as the price for relocating graves, are often made in the absence of men.

Pensioners who are generally cash strapped easily agree to monetary compensation that is far less than fair. Given the history of the triple oppression of women in South Africa, firstly as women and secondly as black South Africans, and thirdly as caregivers who remained behind in rural areas while their men were away on migrant labour in the cities, women tend to be far more submissive and compliant in meetings with 'authorities', be they government officials or mining company officials. It would seem that mining corporations are perpetuating this oppression of women. Thus divisions are created in the community between the elderly and the rest of the community, and between men and women.

Picture 17: Interview with community member who just attended meeting about grave relocations. He is too afraid to be identified, hence the interview through the car window.



The researchers experienced a very similar situation at Mecklenburg. Here the houses provided to those relocated had extremely small yards with no space for trees, cultivation or animal kraals. The relocated graveyard can only be described as pathetic, with no space between graves, mostly concrete head stones, and the very insensitive location of a sports field right next to the grave yard. In the layout of both the settlement and the grave yard very little consideration was given to culture and belief systems.

Picture 18: Relocated graveyard at Mecklenburg



Right next to Implats' Marula operation is the grave yard dissected by two roads constructed by the mining corporation. The manner in which graves are being dealt with must be a cause for major concern for communities who hold to a system of ancestral veneration.

Picture 19: Graveyard next to Implats Marula



In an interview in Armoede with an elderly member of the community, researchers noted the following:

- While he was not forcibly removed in the sense that any physical force was used in the removal process, he relocated to Armoede against his will. The Actions of the so-called Section 21 Company left him with no other choice. These actions included:
 - the destruction of his grazing land and his ploughing fields;

- the deliberate closure and destruction of water sources such as windmills and pumps and the closure of water infrastructure which had been supplied by the local government;
- a feeling of insecurity as more and more of his neighbours and relatives gradually succumbed to pressure and moved;
- To a question as to whether he was happy with his new accommodation he complained that:
 - the new house was built from inferior materials
 - although the house was less than three months old it was already cracking up
 - there was no water in the new house and electricity was supplied by pre-paid meter.
 - the 'enviroloo' was considered unacceptable from a hygienic and operational perspective.
- Other complaints included
 - The loss of land for ploughing
 - The loss of land for grazing
 - The relocation did not include moving his herd of cattle and he had to sell that herd at a loss
 - He is no longer able to supplement his meagre pension income from farming.

Picture 20: A picture of dejection. An elderly member of the community next to the ruin of his house



The old man's story was often repeated by other members of the communities interviewed. A most common phrase from members of the communities researchers spoke to was, "We cried so much about these things that we became silent, we are not able to cry anymore." It is exactly these kinds of complaints that make those who refuse to move to Armoede even more determined in their resistance.

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

The major companies such as Anglo Platinum, Implats, Xstrata and Lonplats do have appropriate management systems in place to implement their policies. However, all these corporations are weak in engaging with communities and individuals within communities about the actual or potential impact of their policies on surrounding communities. In this regard there is heavy reliance on consultants who perhaps lack the necessary qualifications, skills or experience in dealing with such communities. In terms of the physical infrastructure requirements, the major companies have the required treatment and retreatment plants and technology to control emissions. Anglo Platinum publishes the results annually in sustainability/corporate social responsibility reports. **The reports of other corporations lack the detail of the Anglo Platinum report. However, these reports are not available in a format that is accessible to communities living in close proximity to mining operations and therefore most affected.** However, as found in previous research, not all forms of impact are effectively measured. Measuring pollutant seepage into surface water is more easily detectable and measurable than seepage into ground water. In areas such as Sekhukhuneland, where there are numerous mining corporations operating, 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 mining perforation of dykes. At PPRUst it is easy to identify Anglo Platinum as the guilty party in cases of seepage into the Gapila River for example, as it is the only operation in the area.

In Limpopo, a number of rivers are under threat, the Olifants River, Gapila which flows into the Mogalakwena which in turn flows into the Limpopo River. Anglo Platinum also admits discharging water into the Rapholo River and the Bierspruit. Bench Marks researchers witnessed this discharge and recorded the dissatisfaction of surrounding communities with this discharge. Anglo Platinum reports spills and accidental discharges occurred during the year at many operations due to the overflow of tailings return-water dams and pollution control dams, as well as pipe breaks on potable and process water, and tailings pipelines (Anglo Platinum, 2007, p. 89).

Picture 21: Dismantled wind pump next to PPRust operation



While Anglo Platinum admits that “the quality of groundwater is affected at all mining operations, mainly due to seepage from the tailings dam complexes” (Anglo Platinum, 2007, p. 89) it denies that its activities affect the water supply of nearby communities. Action Aid contests this claim (Curtis, 2008). Bench Marks researchers found that Anglo had either **fenced off** or **dismantled several community wind pumps** in close proximity to its operations.

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

South African mining law requires that mining companies engage in public consultation with regard to exploration rights, mineral rights and environmental impact. However, because this consultation does not require public consent, the consultation process is merely formalistic. Furthermore, there is a vast imbalance in knowledge resources, wealth and power that underpin such engagements, and most communities are cowed by the semblance of expertise presented by corporations at such gatherings. When mines hold compulsory environmental impact assessment meetings with communities the representatives of the corporation have a concentration of environmental, geographical, geological and hydrological knowledge, whereas, in contrast communities have low levels of literacy and hardly any tertiary education. This imbalance works in the favour of the corporation.

Anglo Platinum claims to deal with this imbalance by appointing at its own cost such expertise on behalf of communities (Anglo Platinum, 2008, p. 22). As with the payment of stipends to the directors of Section 21 Companies, is very problematic, as members of the community justifiably question the advice that experts in the pay of the corporation would give them.

The company reports that it has extensive on-site surface and groundwater monitoring programmes. “It does not, however, sample all water sources used by the surrounding communities as this is the function of the Department of Water Affairs.” (Anglo Platinum, 2008, p. 20.) This response is unacceptable, since the Anglo Platinum Operations in Mokopane for example is the major consumer of water in the area as well as the single entity that has the strongest impact not only on water, but also on the entire landscape. Noting the complete lack of capacity in the government departments, including the Department of Water Affairs, combined with the fact that a mining corporation’s responsibility does not end at the fence of

the operation given that the impact extends way beyond the area of the operation, Anglo Platinum would do well to do water tests well beyond the current limited testing it is doing.

In dealing with the impact of EIA's a review of Anglo Platinum's decision to move the Ga Puka and Ga Sekhaolelo communities is illuminating. The mine began planning for the PPRust north pit in the mid-1990s. An environmental Impact Assessment (EIA), guided by the environmental management (EMPR), began to determine the potential social and environmental impacts from the proposed open pit at PPRust north. From the mine plan and EIA process specialist studies showed that the two communities would need to be relocated to mitigate the safety and environmental risks posed by mining. When no viable alternative to resettlement could be found, the mine began an extensive process to seek approval for resettlement (Anglo Platinum, 2008, p. 20). What is clear is that the planning of PPRust North and the EIA largely excluded the community. Furthermore, it is clear that the community's right to refusal to have the mining operation at all was not even a consideration. Surely not mining at all is a viable alternative?

Anglo Platinum could exploit the gap in the MPRDA which merely requires that communities are consulted, not that communities have to agree.

Following this, Anglo Platinum met with the Mapela Tribal Authority on the relocation of the two communities. On 24 October 1998 Kgoshigadi Langa called for the formation of 'Relocation Steering Committees' (Anglo Platinum, 2008, p. 22). In other words, people were not asked about whether they wanted to relocate, they were presented by a fait accompli. Some members of the community interviewed allege that meetings were scheduled in such a way that many of the men could not participate, since the meetings took place during the week when men were away on migrant labour. The meeting of 13 October 2002 called by the Kgoshigadi and overseen by officials from the Department of Land Affairs took place on a Sunday afternoon, with many of the men already on their way to work in Johannesburg on Monday morning.

At the said meeting, "it was suggested by the community that the Section 21 Companies be formed" as the two Relocation Steering Committees could not enter into binding legal agreements (Anglo Platinum, 2008, p. 22). The Land Affairs officials present at the meeting were obviously ignorant of the legislation of their own department regarding community management of their own land matters. It could be argued convincingly that the Section 21 Companies **are in conflict with the Communal Land Rights Act (2004)**. According to this Act, communities could gain control over their land, from the State, the Minister of Land Affairs or the Ingonyama Trust by setting up a **land administration committee** to manage and administer communal land on behalf of the community. Where the community has a recognised traditional council, the powers and duties of a land administration committee of the

community may be exercised by this council. The Minister may, alternatively set up land rights boards to advise on land issues and to supervise the workings of the land administration committees. These Boards could be made up of the Minister, nominees of the Provincial Houses of Traditional Leaders and representatives of communities (Lahiff, 2007, pp. 210-211). Clearly, these are the structures that **need to be strengthened to enable traditional/indigenous communities to engage effectively with mining corporations rather than through 'Section 21 Companies.'**

Then there is the **Communal Property Associations Act (Act 28 of 1996)**. This act establishes a new kind of legal body, a **communal property association (CPA)**, for members of disadvantaged and poor communities to jointly acquire land and manage property under a written constitution. This constitution should include:

- A democratic process.
- Equal representation of men and women.
- Ways of ensuring transparency, accountability and consultation, and
- How resources will be managed.

Perhaps the Section 21 Companies came into existence in the vacuum, created by the failure of the national government and the provincial government of Limpopo to properly educate and support rural communities to create the above structures. Whatever the case, the **Section 21 Companies are not sustainable and are very controversial**. It might also be that this situation arose out of the MPRDA requirement that social and labour plans be submitted to the DME for approval, when the country has a Department of Housing and a Department of Labour.

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

All the major corporations do indeed report policies, strategies and targets with regard to creating a working environment that supports health and wellness. However, all the corporations note an increase in fatalities and work-related accidents for 2007.

In 2007:

- Anglo Platinum reported 25 fatalities (18 in 2006), representing a 40% increase;
- IMPLATS reported 13 (7 in 2006), representing a 35% increase;
- ARM reported 2.

Clearly this situation is untenable. It is possible to detect a year on year link between fatalities and the rise in the platinum price. Surely mining corporations such as Anglo Platinum should be using increased revenue generated by the high platinum prices to invest in a safer working

environment. However many, including COSATU, feel that as long as managers are not held criminally liable for fatalities little will be done to improve work safety on South African mines. Human rights lawyer, Richard Spoor, believes that as long as the costs of fatalities are not punitive mines will continue to tolerate fatalities as a minimal cost to production. The markets confound the situation, as every time a mine shuts down after an accident the platinum price increases on the back of the decline in supply, thus offsetting the loss due to closure. The Policy Gap published in 2006 warned of increased seismicity as platinum mines became deeper. The relevance of this warning is confirmed by the major causes of accidents in 2007.

Figure 8: Causes of accidents at Implats

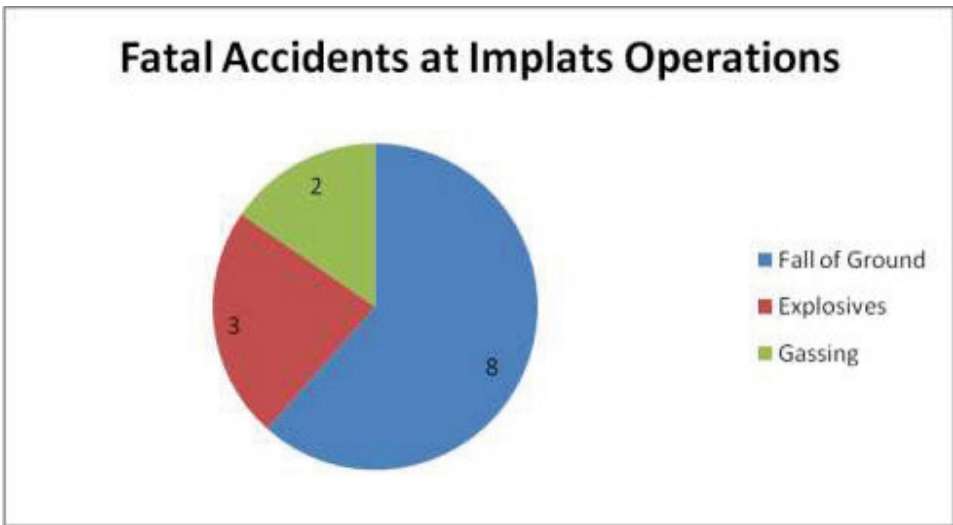
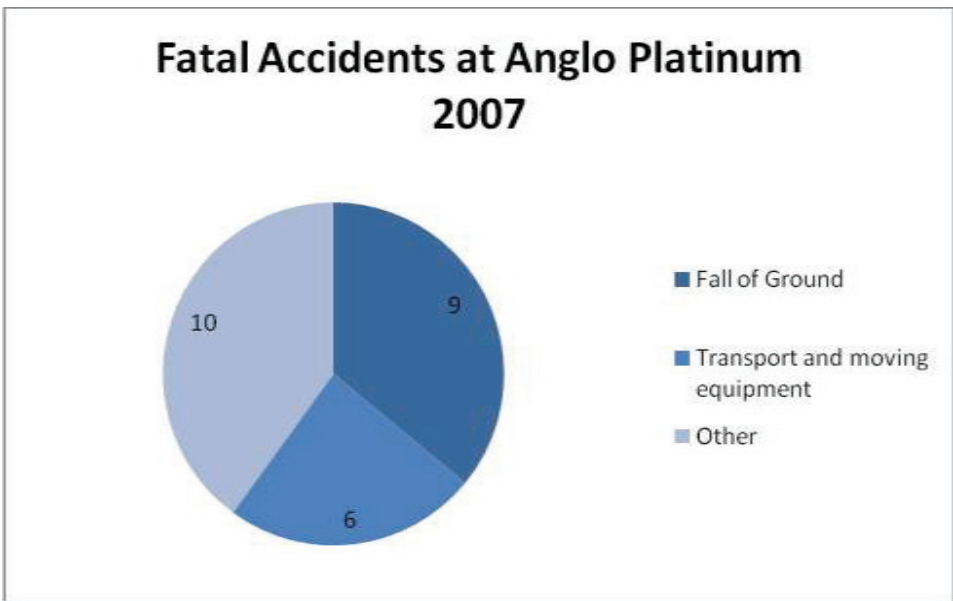


Figure 9: Causes of Accidents at Anglo Platinum



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

Geological faults, dust, noise, gas and moving equipment are serious problems that mine workers have to deal with in their work-places. Workers by law have the right to refuse to work in situations that they deem to be hazardous and life threatening. However, productivity bonuses and the hierarchical structure of work teams militate against this right. Workers are intimidated by their peers who are keen to realise productivity bonuses and are therefore prepared to enter into and work in risky environments. Work team supervisors such as shift bosses are able to override worker reluctance to enter a dangerous situation by declaring the concern unfounded and the area concerned safe for entry.

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)

The major corporations do, as long as the employee is in their employ. A large number of workers medically affected are boarded (60% at Anglo Platinum). Such workers then become the responsibility of the Department of Labour. Bureaucratic inefficiencies severely restrict the access of many boarded workers to proper health care and affordable medicines.

Do the mining companies under review adopt specific principles to ensure that the work-place is free of 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 provided? (2.2.C.1)

It has again been found that the major corporations do. However, the use of untreated water from local municipalities to cool equipment such as rock drills is very problematic and a threat to worker health. The control of dust, pollution and due regard for seismicity leaves a lot to be desired.

Do the mining companies under review ensure that workers can elect representatives through democratic processes to health and safety committees, that they have rights to have regular monitoring of the work-place, 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 their duties? (2.2.B.3)

The mines employ staff to health and safety departments, safety information in the form of billboards and posters is displayed prominently everywhere. However, these notices are often in English. High levels of illiteracy in the work-place also negate such notices.

Consequently, some **general concerns** in relation to the following **Principle** (The Bench Marks Foundation, 2003) will be discussed.

Where the company is engaged in the extraction of natural resources in zones of conflict it does not engage governmental or militia forces to provide security but conducts its own independent security operation. (1.5.P.5)

The research has found that mining corporations, after obtaining prospecting and mining licences, often resort to the use of the South African Police Services (SAPS), private security companies and the courts of law against communities who oppose their operations and who are too poor and lack the knowledge capacity to mobilize similar forces to defend themselves. In many cases the engagement between mining corporations and communities is the very cause of conflict within communities. The situation at PPRust is aggravated by the fact that the legal representative of the Section 21 Company is a Mr Seth Nthai. Mr Nthai is a former MEC for Safety and Security in Limpopo Province. This suggests that Mr Nthai has not only held significant political sway in the ruling party, but also within government. Informants in the community suggest that Mr Nthai still exerts significant influence over the South African Police Services (SAPS) in the area of Mothlotlo and other villages surrounding the PPRust mining operation. Researchers found a **constant presence of police members and vehicles in the Mothlotlo area**. If the village of Mothlotlo was a high crime area, their presence would be laudable. Given that it is not, their presence is sinister to say the least.



During April 2008 Mr Sammy Ledwaba of the Mothlotlo Resistance Committee (MRC), a structure that represents those who refuse to be relocated had a run-in with members of the SAPS. He suffered a broken nose, lost three front teeth and severely bruised lips.

In its defence, Anglo Platinum points out that it provides human rights training for SAPS (Anglo Platinum, 2007, p. 59) and that, “Anglo Platinum certainly does not support unprovoked or unwarranted or disproportionate police action” (Anglo Platinum, 2008, p. 25). Anglo Platinum’s involvement with the police is seen as collusion. However, Anglo fails to realise that the source of the conflict stems exactly from the fact that individuals and families feel that as individual householders they have a right:

- To individual self-appointed legal representation;
- To say no to relocation;
- To their land and property.

The MPRDA does not give corporations the unfettered right over surface right and places certain obligations on corporations regarding the rights of surface rights holders. The close involvement between Anglo Platinum and SAPS in the area undermines the credibility of both Anglo Platinum and SAPS.

The overdependence by Anglo Platinum on the security apparatus of the state to resolve disputes with sections of communities means that the **engagement** with communities, and more importantly **with individuals and families** in communities **have not been done properly**. It is very problematic further to subsume individual rights and obligations under the collective category of ‘community’.

Apart from Anglo Platinum, Nkwe Platinum is also alleged to have hired a security company (Thakali, 2007) ‘to intimidate the community at Maandagshoek (Jubilee, 2007). Platinum Australia and others have also resorted to the police and the courts in their struggles against communities.

As a way of concluding the section about the impacts of platinum mining on the different dimensions of sustainable development and before proceeding to the discussion surrounding the other minerals (gold, uranium and coal), some **concerns** picked up by the research **regarding CSI/CSR reporting** of the industry in Limpopo will be briefly outlined.

10.2.4 CSI and CSR reporting in the platinum mining sector of Limpopo

- **Anglo Platinum Reports**

Anglo Platinum should be commended for the significant improvement in its 2007 report (Anglo Platinum, 2007). This report represents a major improvement over the reports of previous years. Noteworthy is the fact that a number of the recommendations made in the Policy Gap (The Bench Marks Foundation, 2007) have in fact been included in the current

Anglo Platinum Report. It is also refreshing to note that Anglo Platinum has not shied away from reporting on controversial issues such as safety, expressing 'deep regret' over unacceptably high levels of fatalities, commenting on the relocation of the Mothlotlo community, and areas of underperformance regarding its environmental impact (Anglo Platinum, 2007, p. 3). The Anglo Report, along with the one of Implats, demonstrates a willingness to listen to criticism and to act on it. However, this does not imply (as can clearly be seen from the discussions above) that the findings of this research are any less critical of Anglo's current performance.

A disturbing fact that emerged from the Anglo Platinum report is that it is **in the process of applying for water licences** for all its operations. Noting that this company is not a junior that started operations yesterday, why is the corporation only now making these applications? While Anglo Platinum's sustainable development report, "A Glimpse Beyond" represents a major improvement, the implementation of head office policy on the ground still represents a major gap between policy and practice.

It must again be noted that Anglo Platinum gave its full cooperation in the research process from head office and engaged with the Bench Marks Foundation on issues that emerged from the Rustenburg Policy Gap research. Mr Frances Petersen needs to be singled out in this regard. However, at local level, the researchers were often shadowed by Anglo Platinum security officials and the SAPS, despite spending most of their time in communities and on public roads

Picture 22: Ever vigilant mine security



- **Implats Report**

The Implats Corporate Responsibility Report for 2007 also shows some improvement over previous reports and it is again clear that some of the issues raised by the Bench Marks Foundation in its Policy Gap Report for Rustenburg have been dealt with. Mr David Brown, CEO of Implats referred to some 'inaccuracies' in the Policy Gap Report (Brown, 2007, p. 5). The Bench Marks Foundation has yet to receive a written indication as to these inaccuracies since the publication of the Policy Gap Report in June 2007, which will allow it to either correct or defend that report. Implats also fully cooperated in the current research and Mr. Pierre Lourens of Implats proved to be accommodating and helpful.

The Implats Corporate Responsibility Report (CRR) deals honestly with the very significant problem of mine safety in 2007 which it describes as "extremely disappointing" (Implats, 2007, p. 20). A major worry is that there seems to be a correlation between accidents and fatalities and the steady increase in the price of platinum. Implats has moved away from the previously totally spurious claim that only 16% of its employees were infected with HIV/AIDS. However, the current claim that the rate of infection at Implats Rustenburg operations is only 19% is also highly contentious. It would be interesting to note what percentage of Implats workers have volunteered for HIV testing, the employment levels of those who have been tested and the racial composition of the group that have so far volunteered for testing. The inclusion of statistics from the Department of Health, showing that prevalence levels in the general adult population around Impala Rustenburg is 29% (Implats, 2007, pp. 28-29) is interesting. However, the Health Department statistics in this regard is not above debate. Unlike Anglo, Implats does not provide a number or percentage of total work-force tested at each of its operations. Anglo has impressively tested 77% of the total work-force (Anglo Platinum, 2007).

It is significant to note that the most detailed social responsibility/investment reports are derived from those mining corporations that are most closely scrutinised by NGOs and the media. Those who are not in the 'public eye', so to speak, do not offer any social responsibility reports of any significance. Particularly **poor reports** are those of the following companies:

- **African Rainbow Minerals (ARM)**

The ARM report is:

- Impressive on HDSA side and it seems that this corporation is a h(e)aven for those who are seeking 'life after politics' – it boasts no less than one former president from SADC; one former Director General from the North-West Province; one individual who had served in the Department of Trade and Industry, National Treasury and a Premiers' Office; another individual who served a prominent parastatal and NEC

member of the ANC; and finally, a former Head of Department of Economic Affairs and Tourism in Limpopo;

- The report contains no statistics on HIV/AIDS infection levels at ARM operations;
- Its environmental impact report contains no details of incidents while it admits that two of its operations do not even have environmental management systems in place;
- Its social investment issues are completely uninformed by its impact on surrounding communities. Like most other mining corporations, ARM “takes great care to ensure that its corporate and social investment programmes are directly aligned with that of local government’s economic development projects” (African Rainbow Minerals, 2007, p. 91). The serious weaknesses of this approach are noted earlier in this research.

- **Nkwe Platinum Limited**

The poorest annual report for 2007 must be that of Nkwe Platinum. In this report, there are no references to the Mining Charter, the balanced scorecard or social and labour plans. There are also no references to environmental impact assessments, environmental management plans or communities that will be affected by Nkwe’s operations. Nkwe has obtained what may be described as notoriety for the following reasons:

- The acquisition by its subsidiary Genorah of prospecting and mining rights on 9 farms including De Kom and Garatouw which is being contested by Anglo Platinum (Mphahlele, 2007, p. 6). It is suspected that Genorah, which belongs, amongst others, to Sharif Pandor, husband of the Minister of Education who has no mining background what-so-ever, obtained information about properties on which Anglo Platinum had ‘old-order’ rights by questionable means from the Department of Minerals and Energy (DME). It then applied for prospecting licences on the ‘use it or lose it’ principle.
- The use of a security company that allegedly employs mercenaries to ‘protect’ its operations (Giyose, 2007).

Nkwe failed to even consider the Bench Marks research questionnaire sent to it, responding in an e-mail that it could not do so as it did not yet have any going operations on the ground. This, despite the fact that it is legally required to develop EIAs, EMPs and social impact assessments in order to obtain prospecting and mining licences. This makes any observer wonder how the DME granted this company a licence to operate in the first place.

- **Platinum Australia (PLA)**

Despite engaging several members of communities around Maandagshoek, researchers were unable to obtain any annual reports from this company.

The key issues that came to the fore in the research regarding **gold and uranium mining** in the **Gauteng** and **North-West provinces** will subsequently be discussed.

11. GOLD AND URANIUM IN GAUTENG AND THE NORTH-WEST PROVINCE

11.1 INTRODUCTION AND BACKGROUND

The two minerals (gold and uranium) are combined in this report, since uranium is a by-product of gold mining and the mining of uranium occurs in the same geographical area as gold. There are certain key concerns regarding the mining of gold and uranium that require special attention. Gold, after diamonds, is the oldest commodity mined in modern South Africa. Gold mining has been central in determining the political and legislative landscape of South Africa at every stage of its development, underpinning the Anglo Boer South African War (1898-1902) which was one of the first attempts at regime change in modern history, the formation of the Union of South Africa (1910), the dawn of *Apartheid* in 1948, the formation of Bantustans in the 1950s as reservoirs of cheap labour, and ultimately the transition to Democracy in 1994.

11.1.1 Background of gold mining in S.A.

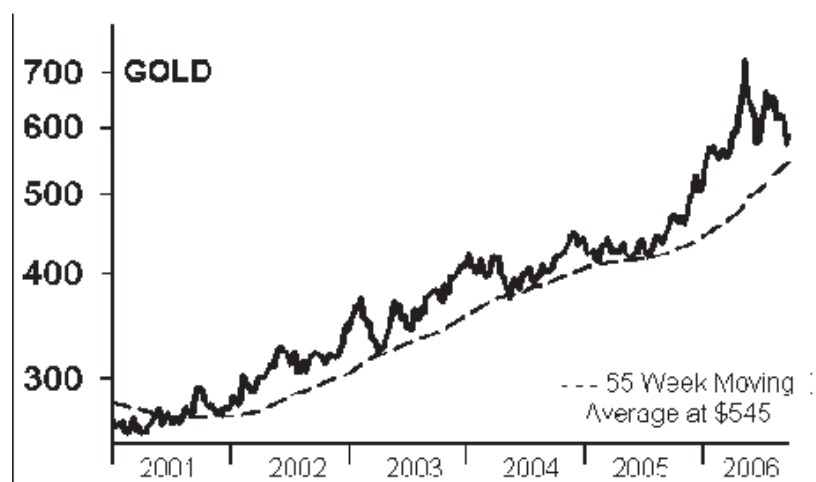
South Africa's gold industry has been the principal focus of black economic empowerment, resulting in a changing ownership structure. Leading the empowerment movement in recent years has been Harmony Gold Mining Company which has merged with ARM gold, which is owned by African Rainbow Minerals.

South Africa used to be the world's largest gold producer since 1905, but it is recently being pushed down to the number two position by China. South Africa is now fighting shoulder to shoulder with the third and fourth largest producers, namely the USA and Australia. This symbolic second place is also marking the lowest production level since 1956. Throughout the world, gold production decreased with 1% in 2007 to 2,444 tons; most of this decrease was "initiated" from South Africa with China the driving force on the other side of the spectrum (Van Rensburg, 2008). In 2003, gold production fell by an estimated 6.5% to 373,074 kg. However, gold still accounted for an estimated 37% of dollar export revenue within the country. 95% of South Africa's gold mines are underground operations, reaching depths of over 3.8 km. Coupled with declining grades, increased depth of mining and a slide in the gold price, costs have begun to rise and as a result production has been steadily falling. However, in order to cut costs, mines have undergone major business re-structuring and have reduced

costs dramatically. Unfortunately, this process involved several thousand workers being retrenched.

However, since the start of the Iraq War, the gold price has been steadily rising on the back of increasing oil prices (see **Figure 10** and **Figure 11**). Oil producers have used the Iraq War, Iran's nuclear programme and natural disasters in the Gulf of Mexico as supposed "threats" to global supply, thus driving the oil price consistently towards and beyond US\$100 for a barrel of Brent crude. This, coupled with a weakening US economy and a declining dollar, has led many global investors turning to gold as a "safe haven", causing the gold price to steadily rise towards US\$800 an ounce.

Figure 10: Steady increase in the gold price (2001 - 2006)



Source: Anne and Aden (2006)

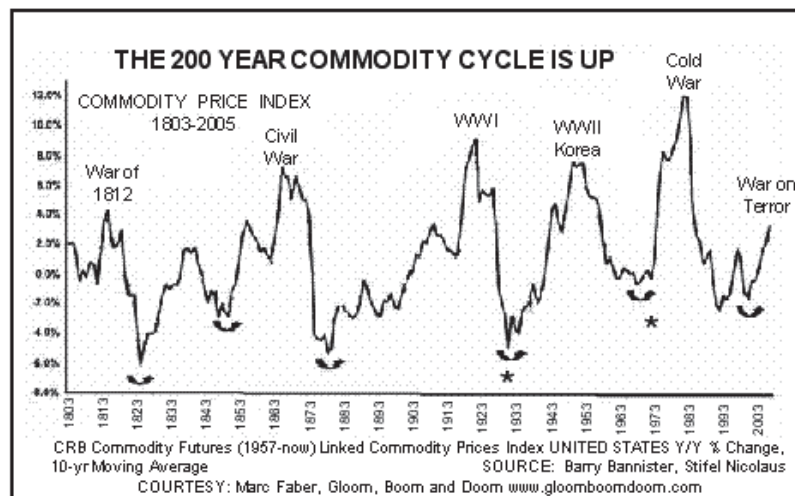
Figure 11: Consistency in the gold price increase (99-07)



Source: Frisby (2007)

Anne and Aden of the Aden Forecast have identified a strong link between sustained increases in the gold price and major conflicts, with the price being sustained over long periods by conflict (see **Figure 12**). Global conflicts therefore represent major trends in the gold price. These trends usually last years and they're the most important. Also important are the even bigger mega trends, which tend to last decades. The same figure shows the index for commodity prices going back to 1803 and the mega trends since then. Note that these trends do not change often, but when they do they last for a long time.

Figure 12: The link between major conflicts and rises in the price of gold



Since 1803, for instance, there have only been 5 mega up moves in commodity prices, lasting about 22 years on average. The sixth mega up move is just beginning and it's coinciding with the war on terror, just as previous up moves also coincided with wars. In making this analysis Anne and Aden have not drawn our attention to any major discovery in the science of political economy, Marx pointed out these trends in his *Theories of Surplus Value* already in 1862 (Marx, 1978, pp. 443-465). Kondratieff pursued the same line of reasoning in his essay on the Long Cycles of the Conjecture in 1922 (Louca, 1999, p. 106) and Mandel in 1972 in his book *Late Capitalism* (Mandel, 1972, pp. 108-146).

This suggests that the current rise in commodities, gold and oil could last another 15 years or so. But that does not mean that the prices for these and other commodities such as platinum, uranium and coal will go straight up. Another factor driving the prices of minerals is demand from the rapidly growing economies of China, Russia and India. There might even be a year or two of a decline during this upward path, but if that should happen it is expected to be temporary and short-lived, with the upward trend to continue feeding on instability in the Middle East.

If the US economy slows too fast or goes into recession, it will likely put further downward pressure on commodities and gold. However, this will probably be a temporary slowdown within the major and mega uptrends. Looking at the bigger picture, U.S. total debt obligations now range between US\$44 and US\$79 trillion. Bush has said the war on terror will continue for years, which guarantees even more debt. This means that inflation is an absolute necessity as it will help erode this gigantic debt load. Ongoing inflation will keep upward pressure on this commodity mega uptrend in the years ahead (Anne & Aden, 2006).

The same is true of geopolitical factors. Oil, for example, is essential for the world economies and oil sources are unstable as big producers bask in the power oil has given them. We all know what is happening in Iran and this will continue to be a sore spot, keeping upward pressure on oil. To a lesser degree, the same is true of Venezuela's Chavez. Venezuela is one of the biggest oil suppliers to the U.S., if not the biggest, and Chavez has threatened to cut the U.S. off. He stands by Iran and Cuba, he has bought an enormous amount of military equipment from Russia, calls Bush names, and he has made a deal worth billions to sell oil to China (Anne & Aden, 2006).

China has also made a huge deal for Russian oil, as it is doing with so many other countries. In order to fuel its booming economy, China is looking ahead and obtaining oil and natural

resources from around the world. China's growth has been one of the main factors driving commodities higher and as China continues to grow in the upcoming years, this alone could be the primary factor propelling this mega commodity trend higher (Anne & Aden, 2006).

The future of the gold industry in South Africa depends on increased productivity. South Africa as the world's largest producer of gold is more exposed than any other country to slumps in price, because its deep level mines are the highest cost producers in the world. Recently South Africa has been affected by a decrease in gold prices and struggling with the strong rand. In 2004 the price of platinum group metals had exceeded that of gold incurring job losses and decreased productivity in the country's gold-mining sector. Gold output in the country fell by 8% from 2005, down to 275 tons. South Africa's gold mines have the highest production costs in the industry.

However, as the figures above show, global conditions are creating very favourable conditions for South Africa's gold-mining industry over the past 24 months (Bain, 2006), with marginal gold mines being reopened and a massive increase in mining investment in the gold-mining sector in 2007 and with mining companies suggesting that they attempt to reach gold deposits at ultra deep levels (10,000 m and deeper), at great cost to worker safety (Faul, 2007).

Gold is the largest mineral foreign income earner in South Africa (although platinum is rapidly overtaking gold), contributing 27.4% in mineral revenues. The gold industry is also responsible for **56% of South Africa's mine labour force**.

South Africa has enormous gold ore reserves, estimated at 40,000 t representing 40% of global reserves. South Africa's main gold producing area is concentrated on the Archaean Witwatersrand Basin. The Witwatersrand basin, which has been mined for more than 100 years and has produced more than 41,000 t of gold, remains the greatest un-mined source of gold in the world. Major new projects, new technology, new approaches to the organisation of work, better labour relations and some commercial innovations are starting to reshape this industry.

Unlike most other gold deposits in the world, the Witwatersrand ("Wits") is a gold placer deposit, with gold being hosted by conglomerates and grits. The Wits sedimentary basin is massive and stretches through an arc of approximately 400 km across the Free State, North West and Gauteng Provinces. The gold-bearing conglomerates or reefs are generally tabular with varying dips. Most of the Wits basin is covered by later-stage sediments of the Ventersdorp and Karoo groups, with the Wits outcropping in Johannesburg, which started the Wits gold rush over a hundred years ago and resulted in formation of the city of Johannesburg.

South Africa does have other smaller gold producers outside the Wits basin in the form of Archaean greenstone belts. The main gold producing greenstone belts are the Barberton greenstone belt and the Kraaipan greenstone belt. The Barberton greenstone belt is situated in the Mpumalanga province, just north of Swaziland. The Kraaipan belt is located west of Johannesburg, near Kuruman. Other smaller belts exist in the Northern Province, but have been worked sporadically.

The South African gold-mining industry in 2002 was driven by the rand's weakness against the dollar and the resulting increase in the rand price of gold. However, in 2003 the rand/dollar exchange rate had an adverse effect on costs and revenues with many companies reporting decreases in profit. Metorex reported a headline loss of 12.18c per share for the half year to December 2003.

11.1.2 Background to uranium mining in S.A.

South Africa is the only country in the world to have voluntarily decommissioned its uranium enrichment capacity. However, as this report will show the country has, since 1994, grown faster than its electricity supply infrastructure can manage. In order to bring supply up to the required demand for further economic growth, South Africa has embarked on an ambitious electricity supply development programme based on coal-fired and nuclear power stations to be rolled out over the next 15 years. The government is therefore not, contrary to its own propaganda, switching to nuclear power as a clean greenhouse alternative to the current coal-fired power stations. The government is committed to coal for the next 49 years and ESKOM has publicly committed itself to coal as the continued major source of power in South Africa (Bloomberg, 2006).

Coal will also be a major source for the narrowly defined Black Economic Empowerment Programme through which the politically connected elite, the so-called "Black Diamonds" will enrich itself. Thus the Business Report of 20 November writes, "The expansion of export capacity at Richards Bay Coal Terminal and increasing demand for coal from Eskom, independent power producers and industrial users, as well as the emergence of empowerment companies, are causing an expansion in the number of junior coal-mining companies" (Brown, 2007, p. 8).

Interestingly, the demand for coal from the National Nuclear Commission is also increasing. Coal is used to fire the boilers of nuclear reactors in the uranium enrichment process (Hill, 2007). Nuclear will not aid global warming either. It is not a lot better than the carbon footprint of coal when the full cycle is considered. The use of nearly 3 000 tons of coal annually by NECSA is only a very minor part of the nuclear mess; the rest is far more hazardous (Gilbert, 2007). This fact is seldom mentioned by those who tout nuclear power as

a greenhouse gas free alternative to coal. While nuclear power is immanently cleaner in terms of green house gas emissions than coal, carbon dioxide is still emitted during plant construction, the heating of boilers and the mining of uranium. This, besides the immense problems associated with nuclear waste and nuclear meltdown disasters (Morris, 2006, pp. 77-97).

So, if the massive drive towards the re-introduction of nuclear power to South Africa is not to reduce our carbon emissions, then why are we hurtling down the uncertain route of uranium mining, uranium processing, and nuclear power? There are several answers to this question:

- Uranium is a very “sexy” mineral at the moment. From Wall Street to London, Paris and Johannesburg bourses it is being touted as “a good investment”! (The Economist, 2007, pp. 66-68).
- What makes uranium so sexy is the very high demand from three of the world’s fastest growing economies, China, Russia and India. These are also three of the least environmentally and militarily responsible countries. Safety and environmental standards in Russia and China are questionable (remember Chernobyl) while India is engaged in a nuclear arms race with Pakistan.
- Being the mineral of the moment, uranium must therefore be a crown jewel in South Africa’s elitist BEE strategy, and not surprisingly ESKOM has convinced the ANC government to dust off an old *Apartheid* technological concept of the pebble bed modular nuclear reactor (PBMNR) – as a stepping stone for some prominent civil servants into the Minerals Energy Complex and fantastic wealth! Thus, no less than Alistair Ruiters, former Director General of the Department of Trade and Industry, was appointed to head the Pebble Bed Modular Nuclear Reactor Company.
- Despite South Africa wishing to export this pocket-sized nuclear reactor, it has appointed two US companies, Westinghouse and Areva to build South Africa’s nuclear power stations to offset the current power shortages (Creamer, 2007).
- The South African government is spending more on the development of the PBMNR than on the development of all other energy alternatives put together. Yet, no one globally has placed any orders for this technology. It is reported that the PBMNR has failed Environmental Impact Assessments.

- **Some further concerns about uranium**

Uranium is a by-product of both gold and platinum mining in South Africa. Where the uranium has not been extracted it ended up in the tailings, slime and other waste facilities, poisoning the surface water in and around Johannesburg and to the west stretching from Randfontein through to Stilfontein (Tempelhoff, 2007). Scientists are warning that South Africa is now **starting to pay the environmental price for its heavy dependence on minerals and**

mining. In the area in question, surface water sources may already have been polluted beyond saving. This includes the Wonderfontein Spruit and Mooi River.

In 2001, the Chamber of mines in South Africa played down the risk of Uranium Pollution from Tailings and other waste facilities. In a paper given on 4 October 2001, at ICEM'01, Denis G. Wymer of the Chamber of Mines of South Africa presented environmental monitoring data for the radiological impact from the gold/uranium mining industry and its wastes. These data were used to calculate doses for members of the public (Wymer, 2001).

“...It is concluded from these results that the impact of gold-mining operations on the environment is small, and will not cause any member of the public to receive a radiation dose more than about 10% of the public dose limit. Current rehabilitation measures for tailings are mainly limited to vegetation and reworking of slopes. It is unlikely that the costs of constructing radon barriers would ever be justified on the basis of the minimal dose reduction benefits that could be achieved. Some measures to control surface water pollution may continue to be necessary but, from present knowledge, contamination of ground water is unlikely to be of concern...” (excerpt from Wymer’s abstract).

Gary Small, a water expert, reported on SABC as far back as 1 March 2005 that a major and broad-based effort is required to stop the poisoning of water supplies in parts of Gauteng by old mines. Concerns are growing about a number of toxins, including radioactive uranium, finding their way into Gauteng's groundwater. The Eastern and Western catchment areas of the Vaal Dam are already receiving toxic water from old mines. Small, who is a hydro geologist, noted that this problem was potentially serious and so large that not one organisation can deal with it. *“This is a kind of disaster that could happen that requires the kind of response that we saw with the Tsunami. We need a spontaneous, collaborative effort to sort this thing out”* (South African Broadcasting Corporation, 2005).

Wymer’s assurances also came short with regard to mine closure and the responsibility for the flow of underground water. In April 2005, *The Star* newspaper reported that the liquidation of DRDGold's Hartebeesfontein and Buffelsfontein gold uranium mines meant that someone has to take responsibility for pumping 28-million litres of water a day out of an underground lake to prevent downstream mines from flooding. AngloGold, whose Ashanti operation is downhill from DRDGold's mines, estimated that it would cost it R85 million [US\$13.8 million] a year if it had to take over the pumping responsibilities. Moreover, the pumping facilities 1 km underground are in such a bad state of repair that steel pipes carrying water to the surface could “blow any day now” if repairs were not carried out soon. James Duncan, spokesperson for DRDGold shirked DRD’s corporate responsibility by saying that it was ridiculous to expect a bankrupt mine to continue bearing the responsibility of pumping to keep other mines profitable, while deriving no benefit.

The Department of Water Affairs and Forestry put the squabbling mines on notice to find a solution within two weeks, or else the government would institute one for them (The Star, 2005). However, the matter remains largely unresolved. By 2007, Mr Wymer's assurances as to the safety of uranium pollution of water in the Gauteng area were proven to be fictional.

The underground water is so acidic that scientists are warning that the water is slowly eroding the dolomitic base (Tempelhoff, 2007, p. 3) on which formal and informal urban areas accommodating 400,000 people are founded, threatening the entire area with the possibility of sinkholes. Such sinkholes have already appeared. On 18 July 2007, Elise Tempelhoff of *Beeld* reported that a sinkhole of 10 m in radius and 500 m deep appeared in Randfontein. The sinkhole is 30 m from the railway line and 100 m from the main road between Randfontein and Krugersdorp. The sinkhole is associated with the mining activities of Harmony Gold in the area (Tempelhoff, 2007, p. 4).

According to findings in a report compiled by German physicists under Dr Rainer Barthel from Brenk Systemplanung's, South African subsidiary BS Associates Ltd, the water from the Wonderfontein Spruit, which was used to irrigate the crops, had absorbed polonium and lead, the radioactive by-products of uranium and radium. Cattle drinking from the Wonderfontein Spruit that churned up the uranium-rich mud were also contaminated by these radioactive pollutants. Their meat and milk would also probably be poisonous. People in towns in this area received their drinking water from Rand Water, but people on farms and informal settlements were reliant on water from Wonderfontein Spruit (News24, 2007).

The report was compiled on request of the National Nuclear Regulator (NNR) who refused to make the contents known for the past three months. Maurice Magugumela, chief official of the NNR, upon enquiry said "there is no reason for concern". Barthel was prevented from delivering two speeches from the report at the Environmin 2007 conference held on July 22 - 26, 2007, titled "Radiological Risks of cattle watering at polluted surface water bodies in the Wonderfonteinspruit catchment area", and "Radiological impact assessment of mining activities in the Wonderfonteinspruit catchment area". He had to withdraw these speeches at short notice.

Sandy Carroll, environmental manager at Harmony Gold Mining (Ltd), admitted that the mining groups were informed about the dangers indicated in the report. She said Harmony was talking to NNR and they were together seeking solutions. The West Rand district municipality planned to erect notices warning people along the Wonderfontein Spruit (which runs for 100 km) not to use the water. Carroll replied in an e-mail to Beeld's enquiries: "Alternative water sources will be suggested". The report stressed that there was no natural water in the whole area that was safe for use by humans, animals or plants (News24 July 31, 2007).

South Africa's coal reserves will be depleted by 2050 yet most of its electricity has been traditionally generated from coal. In addition, the coal fields are situated on the Highveld some 1 500 km from some of the further load centres such as Cape Town. Investigating the potential for alternative generation capacity for such areas in the early 1970s, it was determined that nuclear capacity of around 2,000MW would be cheaper than building a coal-fired plant in the Cape and railing coal from the Highveld area, or to transmit the power to the Cape via 400kV transmission lines.

It was decided in the mid-1980s to build the Koeberg Nuclear Power Plant on the coast at Duinefontein, 35 km north of Cape Town. The plant was commissioned in 1984. The plant consists of two Pressurised Water Reactors and was built by Framatome. Fissile fuel was obtained from overseas, but at the height of the sanctions period there were fears that nuclear fuel could be embargoed and the then Atomic Energy Board (now the South African Nuclear Energy Corporation – NECSA) was asked by the Government to design, build and operate an enrichment plant to provide power plant enriched fuel. Later this was expanded to manufacture the fuel locally. However, since sanctions are no longer applied against South Africa, it is now possible for Eskom to obtain nuclear fuel on the international market. Hence the conversion, enrichment and fuel element fabrication facilities have recently been closed.

What is puzzling is that options such as geothermal power stations are not even being considered.

11.1.3 Major corporations in Gold and Uranium Mining

- **Gold**

Due to the numerous changes in control and mergers that have occurred in the South African Gold Industry, many of the traditional names have been rendered redundant. South Africa's major gold producers (producing more than 1Moz annually) are AngloGold, Gold Fields, Harmony and Durban Roodepoort Deep (DRD). Numerous other gold mines exist, operated by Avgold, JCI Gold and African Rainbow Minerals.

Consolidation of South Africa's mining industry has become a key issue in order to maintain the industry as a leading gold producer globally. Most of South Africa's goldfields have been split up according to the current mineral rights holders, although the ore body being exploited is essentially the same. In order to extract the ore body effectively, South African producers will have to devise methods in which the "farm fences" dividing their properties can be eliminated, leading to a more economic method of mining and extraction to the benefit of all parties concerned. A similar scenario exists in Nevada, where Rio Tinto and Barrick have a similar arrangement. Currently, South Africa's gold production is dominated by Anglo Gold,

Gold Fields and Harmony (and to a lesser extent DRD). Anglo Gold has already begun the consolidation process through the sale of several of its older mines in the North West and Free State Provinces to Harmony Gold. Further consolidation in the Free State Goldfields continued in 2001, with AngloGold selling off its Free State assets to a Joint Venture (called Freegold) between Harmony and African Rainbow Minerals (ARM).

- **Uranium**

Government put mining companies on notice to ensure groundwater pumping at bankrupt Hartebeestfontein gold/uranium mine. The recent liquidation of DRD_Gold's Hartebeestfontein and Buffelsfontein gold mines means someone has to take responsibility for pumping 28-million litres of water a day out of an underground lake to prevent downstream mines from flooding. Clearly underground water and surface water derived from sprays are at severe risk of uranium contamination.

AngloGold, whose Ashanti operation is downhill from DRDGold's mines, says it will cost it R85 million [US\$13.8 million] a year if it has to take over the pumping responsibilities. Moreover, the pumping facilities 1 km underground are in such a bad state of repair that steel pipes carrying water to the surface could “blow any day now” if repairs are not carried out soon. So what happens to mine closures and DMEs closure legislation in case of bankruptcies?

The Department of Water Affairs and Forestry has put the squabbling mines on notice to find a solution within two weeks, or else the government would institute one for them (The Star, 2005).

Simmers did a Public Offering for First Uranium in 2006. The listing increased up to C\$75m, which was used to fully finance the **Buffelsfontein tailings project**. Simmers expects to ramp up uranium output to around 1.3 million pounds [500 t U] by 2008. Buffelsfontein has about 45 million pounds [17,300 t U] of measured and indicated resources of uranium in the tailings and there is potentially more at the Randfontein mine, according to chief executive Gordon Miller (Reuters, 2006).

First Uranium (Pty) Ltd has completed a mineral resource estimate for all surface tailings dams at the Buffelsfontein mine. The 283 million t of tailings contain 16,786 t U at a concentration of 0.0057% U and 2.8 million ounces of gold grading at 0.3 g/t. Initial results indicate a 15-year project life, with the potential to extract 4,620 t U and 1.3 million ounces of gold from the tailings (Simmer & Jack Mines, Limited, 2006).

On 13 August 2007, First Uranium Corp announced that, to date, US\$29.1 million has been spent on re-opening and re-furbishing the Ezulwini Mine. The shaft stabilisation is on track for completion in September 2007 and the Corporation expects to commence hoisting ore in

October 2007. The first uranium plant module is on track for completion in June 2008 to achieve an average annual production of 888,000 pounds of uranium [342 t U] over the 18-year life of the mine.

Ezulwini Mining Company (Pty) Limited has completed an independent Mineral Resource statement for its Ezulwini project, following the completion of phase one of a bankable feasibility study.

According to the first phase of the study, the project is financially viable and technically possible, putting the life of the mine at approximately twenty years. Gold reserves are expected to offset significantly the extraction costs of the uranium deposits. Historically, uranium was mined from the Middle Elsburg section of the mine but the plant was decommissioned in the late 1990s following the collapse of the uranium price (Simmer & Jack, 2006).

Simmer and Jack Mines Ltd plans an IPO to raise funds to complete the first phase of the Randfontein project through its Ezulwini subsidiary and fund the second phase. The firm's board is due to give the green light for the initial phase of gold production later in June 2006 and a feasibility study to also mine uranium there in a second phase is due in September 2006, chief executive Gordon Miller said (Reuters, 2006).

On 9 July 2007, the first shipment of ammonium diuranate (ADU) was shipped from the **Dominion Reefs Uranium Mine** near Klerksdorp. ADU is a concentrate containing uranium which, after calcining, is converted into uranium oxide (U₃O₈). The shipment was delivered to the facilities of Nuclear Fuels Corporation of South Africa ('Nufcor SA').

On 18 May 2007, Uranium One Inc. announced the production of the first ADU whilst commissioning the solvent extraction circuit at its Dominion Reefs Uranium Mine near Klerksdorp. The ADU will be further processed into U₃O₈ (yellow cake) in Nufcor's calcining plant.

Processing of underground uranium ore at its Dominion Reefs Uranium Mine commenced on schedule in 2007 following the successful hot commissioning of the atmospheric leach circuit at the Dominion mill (SXR Uranium One, 2007). The South African Department of Minerals and Energy ("DME") has granted SXR Uranium One a new-order mining right for the Dominion Uranium Project under the Mineral and Petroleum Resources Development Act of 2002. The mining right has been granted for an initial period of 30 years. The area covered by the mining right comprises approximately 14,000 hectares (SXR Uranium One, 2006).

In the last week of September 2005, Aflease CEO, Neal Froneman, presided over a small ceremony to clear the ground ahead of the construction of a new ZAR500 million [US\$79 million] processing plant at its Dominion Reefs uranium mine near Klerksdorp. The plant is due to be up and running in the first quarter of 2007, when production is due to begin at Dominion Reefs. The plant is sited alongside Aflease's existing gold plant, and at full production, throughput capacity at the uranium plant is planned to be 210,000 tons a month, with expected recoveries in excess of 90% (Aflease, 2005).

Aflease Gold and Uranium Resources (AFL) announced that it had entered into an agreement in principle with **Harmony Gold (HAR)** whereby Aflease would acquire the right to mine, process and market all of Harmony's uranium in South Africa.

The resource that is included in the agreement is estimated to consist of 155 million pounds (lbs) of uranium oxide [59,619 t U] of high grade dump and tailings material, which could start producing uranium in about two years. A further 145 million lbs of uranium oxide [55,772 t U] low-grade tailings has also been delineated as a future target. The Harmony uranium deposits are situated predominately to the west of Johannesburg and in the Free State province (Business Day, 2005). The project was terminated after drilling results from several of the tailings showed that “the uranium resource fell short of expectations” (Business Report, 26 May, 2005).

On 4 July 2007, **Mintails Ltd** announced that the total resource has been doubled to approx. 21 million lbs U₃O₈ [8,077 t U], 3.5 million lbs [1,346 t U] of which have been upgraded from the “inferred” to the “indicated” category. On 17 May 2007, Mintails Ltd announced an inferred resource of 10.4 million lbs U₃O₈ [4,000 t U] in the 285 million tons of gold tailings owned by the company in the West Rand area.

The major issues that differentiate gold and uranium from platinum and coal are:

- The absolute **toxicity of gold and uranium mine waste facilities**;
- Gold mining is long established, so **exploration is not nearly as intense** as with Platinum and Coal;
- Most gold mining in South Africa is **shaft rather than opencast** mining;
- South Africa's gold mining is **ultra deep level and therefore incredibly dangerous**, with a **fatality record that far outstrips that of both platinum and coal**;
- Gold mining has had and continues to have an **immense impact on both surface and ground water**;
- Gold mining has had an **impact on the geological foundations** of major urban areas such as Welkom, Stilfontein, the West Rand and the East Rand;

- While pollution from gold and uranium mining impacts on both urban and commercial farming communities, these mining sectors do not impact on traditional communal farming communities.

In terms of labour conditions such as wages and remuneration, the situation and the legislative environment gold mining is much the same as that of platinum and coal. This section will therefore not repeat the findings of earlier sections where they are the same but focus on issues particular to gold and uranium mining.

Consequently, the impact of gold and uranium mining on the **three dimensions of sustainable development (economical, environmental and social)** will be discussed.

11.2 FINDINGS AND DISCUSSION

11.2.1 Economic dimension

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

It has been found that for farmers, environmentalists and the tens of thousands of people living along the Wonderfontein spruit catchment, and in the case of those in informal settlements using the water from that water source, the **interests of the corporations and their own do not coincide**. It is clear that no mining operation will ever succeed in integrating the interests of all the divergent stakeholders, particularly those suffering the impact of mining operations.

A disturbing fact is that the interests of mining corporations and those of government and the majority party in government seem increasingly coincidental. This is leading to a crisis of democracy in South Africa as people affected by the impact of mining turn to government departments for recourse and defence, but find those departments unresponsive to their needs. The frequency of delivery uprisings in townships, of clashes between members of communities, the police and mining corporations, and the current wave of xenophobic attacks all point to a crisis in democracy, and a ruling party democratically elected out of touch with the electorate.

Do the mining corporations under review develop a transparent process for the inclusion of indigenous peoples as full participants in business decisions?