

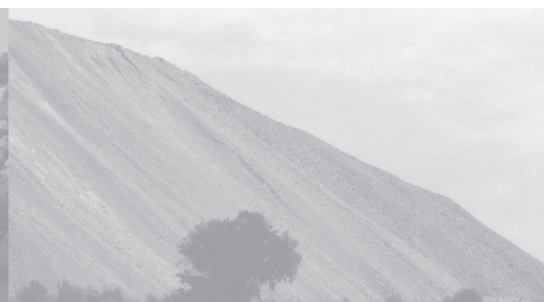


**the dme**

Department:  
Minerals and Energy  
REPUBLIC OF SOUTH AFRICA

## **SUSTAINABLE DEVELOPMENT IN MINING INITIATIVE DEVELOPMENT OF INDICATORS FOR MONITORING THE CONTRIBUTION OF THE SOUTH AFRICAN MINING & MINERALS SECTOR TO SUSTAINABLE DEVELOPMENT**

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## BACKGROUND: PRELIMINARY PRINCIPLES AND CRITERIA (P&C)

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### Introduction

Following the World Summit on Sustainable Development in 2002, the Department of Minerals & Energy (DME) initiated a programme to develop a strategic framework for sustainable development. The vision, embodied in this framework, is that: “by 2010, the South African minerals and petroleum sector is able to contribute optimally† to sustainable development.” The CSIR, Mintek and Council for Geosciences have been tasked by the DME to assist in developing a strategy, and an associated monitoring system, to achieve this vision.

It is well recognised that progress toward sustainable development requires increased information for decision-making. One way in which this can be translated in practice, is through the use of indicators. The regular measurement of indicators allows one to track trends through time, providing information for more informed choices, as well as allowing for continuous improvement.

The aim of this monitoring system is therefore to report on the contribution to sustainable development made by the South African mining and minerals sector, to aid relevant decision makers and track progress over time.

The monitoring system for the mining and minerals sector will be structured using the Principles-Criteria-Indicators (PCI) approach. The identified indicators can be used as a tool for performance assessment and improvements of the sector, including:

- Providing feedback on changes in the system and performance of policy;
- Improving the chances of successful adaptation;
- Ensuring movement towards a common goal;
- Improving implementation; and
- Increasing accountability.

Indicators can serve a number of purposes and those particularly relevant to the mining and minerals sector include:

- Encouraging the sector to monitor and evaluate their activities against the requirements of sustainable development.
- Providing the DME with information to report on its own performance and that of the sector.
- Providing measures to assist the sector in adopting sustainable business practices.

### Short description of the preliminary Principles and Criteria development process

The monitoring system for the mining and minerals sector has been structured using the Principles-Criteria-Indicators-Standards (PCIS) framework (Box 1). This indicator development framework is goal-based and therefore guided by the vision for sustainable development in the mining sector. Within a goal-based framework, indicators are developed and organised according to how they relate to various goals (Principles) and objectives (Criteria) that have been identified to achieve the articulated vision. With time, standards can be designed for each indicator to benchmark progress towards achieving each Principle. All of the above involves communication and interaction with stakeholders in the sector.

### Box 1: PCIS Definitions

Principles - Broad goal statements for achieving sustainable development in mining.

A principle is a fundamental truth or law as the basis for reasoning/decision making.

Criteria - The management objectives that are set in order to achieve the broad goals set out in the principles.

Indicators - Tools for measuring whether the management objectives set in the criteria are being achieved.

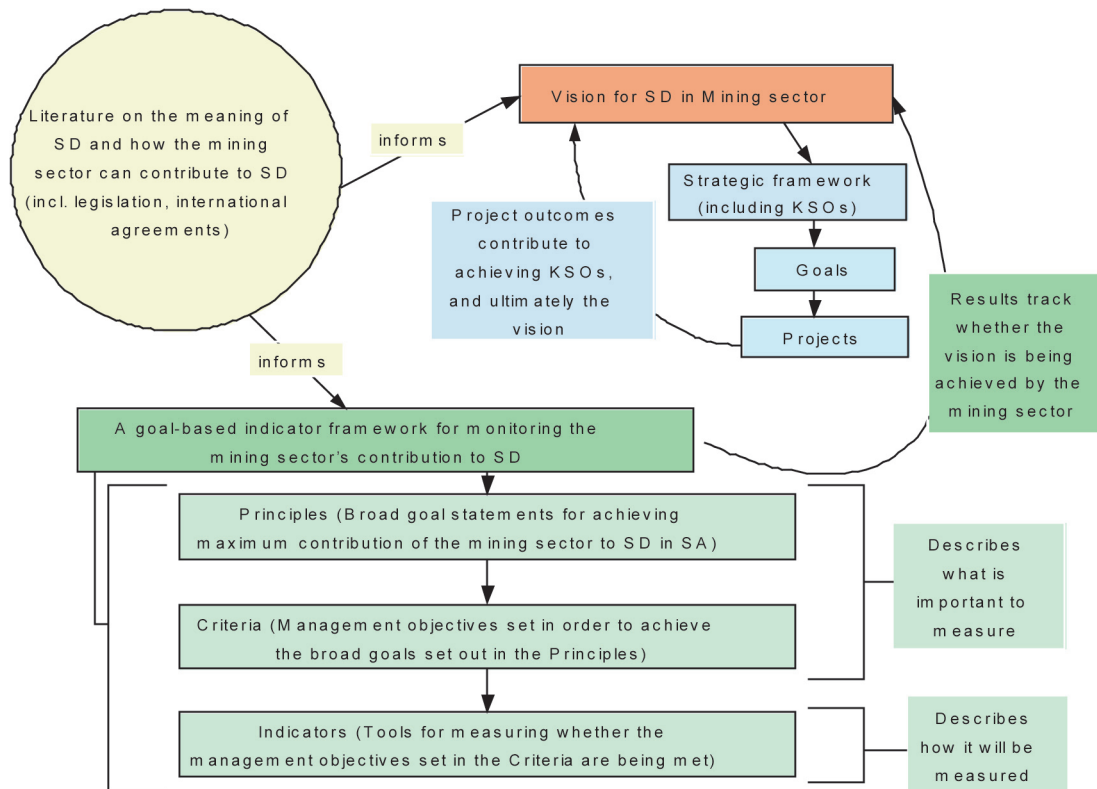
Standards - Minimum levels set as targets to which management should strive in an attempt to improve sustainability.

Further detail on the process and value of the PCIS approach, as well as a description of the indicator development project as a whole, is found in the Final Indicators Report (2005/6). The following sections document the steps taken to date in forming the preliminary set of Principles and Criteria to be pilot tested in preparation for the full PCI development process in 2007/8.

#### Step 1: Confirmation of the purpose of the indicator set

It is well recognised that progress toward sustainable development requires increased information for decision-making. The regular measurement of indicators allows one to track trends through time, providing information for more informed choices, as well as allowing for continuous improvement. The aim of this monitoring system is therefore to report on the contribution to sustainable development made by the South African mining and minerals sector, to aid relevant decision makers and track progress over time.

Figure 1 illustrates how the goal based indicator set functions within the larger initiative for sustainable development in mining. As with the vision, the PCI set is informed by key literature and thinking on Sustainable Development in terms of how best the sector can practically participate in achieving the society's sustainability goals. The monitoring results will track progress made by the sector in reaching its vision, and will highlight areas where improvement is needed if the ultimate goal is to be met. Thus, while the monitoring framework is one of several projects within the sustainable development in mining initiative, it should function as an independent feedback tool for assessing continual improvement in the sector as a whole.



**Figure 1: The purpose of the PCI set and its links with other projects in the SDM initiative**

## Step 2: Review of international and local SD literature

In order to unpack the vision for sustainable development in mining into tangible or practical components to be measured, a series of influential documents were reviewed. These included:

- the Johannesburg Plan of Implementation (JPOI) from the World Summit on Sustainable Development (WSSD),
- the Mining, Minerals and Sustainable Development (MMSD) reports,
- the National Strategy for Sustainable Development (NSSD),
- the International Council on Mining and Metals (ICMM) principles,
- the World Bank Group Extractive Industries Review (EIR),
- The Global Reporting Initiative (GRI) Mining and Metals Sector Supplement,
- Azapagic, A. 2004. Developing a framework for sustainable development indicators for the mining and minerals industry. *Journal of Cleaner Production* 12, 639-662, and
- Limpitlaw, D. Sustainable Development review of the mining and minerals sector. Centre for Sustainability in Mining and Industry, School of Mining Engineering, University of the Witwatersrand.

Key factors/variables describing the fundamentals of sustainable development were pulled from these documents and captured as tables of what was termed “SD elements” for the purpose of this process. As per convention, these elements were initially grouped into four pillars or themes of sustainable development: social development, economic development, environmental protection and governance. This division allowed the team to check the overall comprehensiveness and balance of the SD elements that were to form the basis for the Principle and Criteria developed.

### Step 3: Development of draft Principles using SD elements

Using the tables of SD elements, the team worked individually to group similar elements together to form fewer, more strategic issue categories. These groups cut across the initial four pillars/themes in many cases, as the links between different elements became clearer. The team then brainstormed together, sharing their interpretation of how the broader categories should be focussed. Once a fair degree of consensus was gained, the team debated the most suitable phrasing for each broad category, and in doing so formulated the first draft list of Principles.

### Step 4: Review and refine draft Principles and assign draft Criteria under each

At a second workshop, the team checked first draft list of Principles against key national legislation (namely the National Environmental Management Act (NEMA) and the Minerals and Petroleum Resources Development Act (MPRDA)) as well as the draft sustainable development in mining strategy, to ensure their compatibility and relevance. The team reviewed the last workshop's outcomes and discussed possible improvements to the wording of each Principle and reworked these as necessary. While involved with this, the team referred back to the tables detailing the SD elements as defined by key literature, and determined under which Principle each factor/variable best fits. The second draft therefore contained a refined set of Principles along with an initial breakdown of the factors/variables to be achieved in order to meet these goals.

### Step 5: Review and refine draft Principles and Criteria

A third workshop focussed primarily on forming appropriately phrased Criteria under each Principle. The factors/variables assigned under each at the previous meeting were discussed and reworded as management objectives. Once all the criteria under a Principle were complete, the team again revisited the phrasing and focus of the Principle to ensure its suitability. In two cases the team debated whether one Principle should be combined with another Principle, but in both cases it was decided that combining these would increase the risk of losing important details when monitoring. The team then wrote up short explanations for each Principle, and this third draft is the list presented along with this document.



## PRELIMINARY PRINCIPLES AND CRITERIA (P&C) SET

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**Principle 1:** *Maximise the contribution of the mining sector to national economic development (links with MPRDA: 2f)*

**Brief Explanation:** As a key sector in the South African economy, mining and minerals must play a role in maximising the potential opportunities and benefits of its activities. Technology development, trade and investment should assist South Africa in achieving sustainable growth.

**Criteria: (Management objectives set out to achieve the broad goal outlined in the principle)**

- Relevant technology is developed, and inter- and intra-sectoral transfer is ensured
  - SMME development
- Compliance with appropriate trade and investment policies and regulations
- Ensure diversity and competitiveness of the sector
- Facilitate local (South African) beneficiation
- Direct financial contribution from mining is optimised

**Principle 2:** *Contribute to the socio-economic development of South Africa (links with MPRDA: 2i)*

**Brief Explanation:** As the sector's activities are situated within, or impact on, local communities, industries in the sector have a responsibility to practically promote and uplift community livelihoods. In order to work towards sustainable, resilient communities both social and economic needs must be addressed. These include creating opportunities for community economic initiatives based on local entrepreneurship, infrastructure development, skills development and resources, as a basis for local economic development and competitiveness prior to and after mine closure.

**Criteria (Management objectives set out to achieve the broad goal outlined in the principle)**

- Ensure skills development and transfer
  - multi-skilling
- Prioritise job creation and employment
- Contribute towards community development
  - Working towards poverty-related targets
  - Improve/build basic infrastructure
  - Improved access to appropriate energy sources (reduce use of low grade wood and coal)
  - Improving food security and natural resource-based livelihoods
  - Contribute towards community education and capacity building e.g. computer rooms, libraries
  - Access to land – tenure, ownership
  - Access to sanitation
  - Access to safe drinking water



- Facilitate the development of sense of place and belonging
  - Community at large
  - Employee integration into community

**Principle 3:** *Expand opportunities for historically disadvantaged persons (links with MPRDA: 2d; 100)*

**Brief Explanation:** The mining sector must continue to contribute to the correction of historical imbalances caused by the legacy of apartheid. The empowerment of historically disadvantaged South Africans in the mining sector presents opportunities for the sector to eliminate discrimination against individuals.

**Criteria (Management objectives set out to achieve the broad goal outlined in the principle)**

- Ensure the mining sector is aligned with applicable national guidelines that address historically disadvantaged persons (related to race, gender and where applicable, age).

**Principle 4:** *Develop and strengthen health and safety programmes and initiatives (links with MPRDA: 2h)*

**Brief Explanation:** Improved health care and mitigation of health and safety risks are key areas in which the mining sector can reinforce the development of human capital and contribute towards sustainable practice. Therefore, it is essential that there is continued implementation and improvement of measures to safeguard people from health and safety hazards and the risks associated with mineral resource extraction, use, and mine closure. Furthermore, a strengthened contribution by the mining sector to general health care and health education initiatives can significantly assist in reducing the burden that inadequate community health care has on human capital development.

**Criteria (Management objectives set out to achieve the broad goal outlined in the principle)**

- Continued and enhanced involvement in reducing the spread, and increasing the treatment, of communicable diseases (e.g. HIV; TB);
- Seek and ensure continual improvement of occupational health and safety conditions (e.g. Reduce work related injuries and health impacts);
- Seek and ensure continual improvement of all aspects of operations that could have a significant impact on communities neighbouring mining sector facilities (e.g. Reduce health risks associated with emissions from operational facilities and safety risks associated closed/decommissioned facilities).

**Principle 5:** *Promote responsible practice*

**Brief Explanation:** In addition to compliance with applicable laws and regulations the mining sector must continue to develop and maintain commitment to voluntary codes and initiatives aimed at responsible and ethical business practices, sustainable development principles and the implementation of sound systems for corporate governance.

**Criteria (Management objectives set out to achieve the broad goal outlined in the principle)**

- Comply and exceed the requirements of the applicable laws and regulations;
- Adopt and promote basic human rights and best practice business ethics;
- Implement policies and practice that promote environmental and social performance & accountability;
- Facilitate and encourage the use of appropriate tools for responsible and integrated material management



throughout the mining sector value chain (e.g. life cycle analysis, risk assessment);

- Promote and encourage the use of the 'precautionary principle' when assessing the risks associated with mining sector developments and that of existing operations.

**Principle 6:** *Contribute to achieving sustainable (efficient) patterns of production and consumption*

**Brief description:** Industries in the mining and minerals sector should participate in reducing their impact by adopting efficient processes and applying best available technologies. Measures must be taken to manage every activity undertaken in a sound manner, and with a focus on continuous improvement.

**Criteria (Management objectives set out to achieve the broad goal outlined in the principle)**

- Application of cleaner production principles
- Waste minimisation, increased waste reuse and recycling
- Sound management of chemicals and hazardous wastes
- Energy efficiency, Use of renewable/alternative energy sources
- Green procurement
- Water management
- Air management
- Land management

**Principle 7:** *Reduce impact on life support systems and the ecological services they provide*

**Brief Explanation:** The nature of mining is such that the biophysical environment is impacted upon, resulting in various forms of environmental degradation. These impacts need to be reduced and mitigated sufficiently to ensure that ecological services continue to function optimally in order to support life. The mining sector must show commitment to the long term well-being and resilience of the biophysical environment.

**Criteria (Management objectives that are set out to achieve broad goals outlined in the principle)**

- Manage and mitigate affected natural capital / ecosystems;
- Contribute towards biodiversity conservation;
- Ensure effective and appropriate land rehabilitation;
- Ensure comprehensive disaster management and planning.

**Principle 8:** *Develop effective partnerships and communication networks to promote good governance*

**Brief Explanation:** A key element in achieving the maximum contribution to Sustainable Development by the mining sector is creating and maintaining strong links with other role-players and organisations that are working towards similar goals. In order to be effective, these networks require a culture of democracy, honesty and respect, so that optimal cooperation can take place to reach mutually beneficial outcomes in the short, medium and long term. These outcomes will be greater than those a single role-player could have achieved working alone.

### Criteria (Management objectives that are set out to achieve broad goals outlined in the principle)

- Ensure transparency and availability of information;
- Maintain democratic (open, fair and inclusive) communication channels;
- Implement co-operative governance;
  - o Partnerships between and within government departments, industry, civil society
- Participate and encourage multi-stakeholder, integrated (local level) planning.

### Principle 9: *Ensure the ability of government (i.e. the DME) to fulfil its mandate*

**Brief description:** The Department of Minerals and Energy is central in driving the process of ensuring an optimal contribution to Sustainable Development by the mining and minerals sector. The capacity of government to fulfil three distinct elements, namely rule making, rule application and rule adjudication becomes critically important in achieving any goals established.

### Criteria (Management objectives that are set out to achieve broad goals outlined in the principle)

- Strengthen and maintain regulatory capacity
- Ensure a common vision for the contribution of mining sector to Sustainable Development in South Africa
- Ensuring capacity/resources for meeting reporting commitments
- Strengthen capacity to enforce legislation/regulations and address impacts throughout the life cycle
- Promote accountability



## QUESTIONS TO GUIDE STAKEHOLDER FEEDBACK

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1. Read through each Principle (broad goal) and answer the following:

- a) Do the Principles address the key aspects needed to ensure the mining and minerals sector is contributing to Sustainable Development?
- b) Bearing in mind that a maximum of 10 Principles is preferred, are any additional Principles necessary to complete this set?
- c) Are there any Principles that should not be included in this set? Please elaborate.
- d) Should any of the Principles be reworded to better reflect the key aspects required for contributing to Sustainable Development by the sector?

2. Read through the Criteria (objectives) and answer the following:

- a) If all the Criteria under each Principle were achieved, would this ensure that the Principle concerned would also be achieved (i.e. are the Criteria under each Principle complete and appropriate)?
- b) Are there any Criteria that should not be included in this set? Please elaborate.
- c) Should any of the Criteria be reworded to better reflect the key objectives required for contributing to Sustainable Development by the sector?

3. Are there any other comments regarding the preliminary Principles and Criteria set?