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## Looking Forward 2006-2010

### Vision

The Centre for Sustainability in Mining and Industry (CSMI) is recognised globally as a centre of excellence in Africa for the training and education of managers, practitioners and regulators in sustainable development. The centre concentrates on occupational safety and risk management, occupational health, the bio-physical environment, community investments and stakeholder engagement.

### Objectives

The objectives of the centre are to:

- be an African-based global leader in education and training in the fields of safety, health, the environment and the community (SHEC);
- provide recognised and accredited training in these fields for managers, practitioners, regulators and stakeholders in mining and industry;
- provide education leading to recognised academic qualifications for professionals wishing to pursue careers in these SHEC fields, in the private sector, industry, government or non-governmental organisations;
- facilitate co-operation between leading institutions in the delivery of courses relevant to SHEC in industry;
- create an internationally recognised database of SHEC indicators;
- build a resource for practitioners, stakeholders and others in the health, safety, environment and sustainable development fields; and

- undertake research in support of the objectives of the centre's objectives which also promote best practice in SHEC.

### Introduction

In many countries other than South Africa, safety science or safety management degrees are offered by universities, the University of New South Wales, the University of Cambridge and the University of Michigan for example, and some business schools have developed specialist SHEC MBA courses. Formal training in South Africa is not only necessary because of the gaps in current management and practitioner training, but also because sustainable development in South Africa and Africa must be framed by the priorities of development in general.

The CSMI opened its doors at the University of the Witwatersrand (Wits) in 2003 with support from BHP Billiton, Lonmin and AngloGold Ashanti. It is broadly concerned with sustainable development. More specifically, it transfers knowledge and develops practice in the fields of safety, health, environment and community development. This is done through formal courses, colloquia, workshops and research. These services are provided through a network of people extending across and beyond Wits. This network consists of practitioners, academics, researchers and experts from a variety of disciplines including engineering, social science, medicine, natural science and economics.

## Governance of the CSMI

The governance structures of the centre include an advisory board, a management committee, technical advisory committees and, at present, an operational committee. The advisory board is the highest governance structure and comprises representatives from Wits, stakeholders and interested parties from industry and government. It is required to meet at least twice a year. The management committee provides strategic advice and direction to the CSMI and comprises individuals drawn from industry, academia and research institutions. A representative of the founding sponsor, BHP Billiton, currently chairs the management committee. The operational committee comprises the head of the Mining School, the director and the co-director of the CSMI, and the chairperson of the management committee. It has been formed to assist the centre in establishing itself more securely. Technical advisory committees (TACs) have been established for occupational health, occupational safety and the biophysical environment, and for the community and sustainable development. The members of the TACs are drawn from industry, government, research institutions and academia.

It is envisaged that the members of the governance structures will become more diverse in the future with stronger representation from trade unions, government, NGOs, community organisations and financial institutions, as appropriate.

The running of the centre is in the hands of the director, who is appointed to the staff of the School of Mining Engineering. A co-director has been appointed on a part-time secondment from industry to assist in strategic planning, course development and presentation, and to liaise with industry and facilitate sponsor involvement. The director reports through the head of the School of Mining Engineering to the dean of the Faculty of Engineering and the Built Environment.

## CSMI Gearing Up

The centre has now reached the limit of what it can do through networks alone. Current limiting factors are the number of interfaces and relationships which the directors and administrator maintain and their transient nature. The sheer number of these relationships stands in the way of efficiency and continuity while such connections are too insubstantial for the achievement of quality, depth and stability in either the medium or long term.

The centre has a plan that builds on past experience and is aimed at:

- creating more capacity in the centre itself while retaining the advantages of the network;
- enabling the centre to operate at a more strategic level and to deliver on the products that are envisaged;
- formalising the centre's core offerings, namely short courses and workshops, through academic or continuing professional development accreditation, and offering courses according to a timetable;
- gearing short course content towards skills transfer or skills development;
- continuing with the development of formal postgraduate qualifications in the SHEC fields; and
- strengthening the centre's capacity in SHEC benchmarking.

## Outputs

The main outputs of the centre are categorised as follows, and are to be further developed and formalised as appropriate.

### Academic courses

- short SHEC-related courses for non-degree purposes
- accredited short courses which could be for degree purposes
- graduate diplomas in engineering (GDE) and graduate diplomas in science (GDS)

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- MSc and PhD programmes (combining course work and research where possible)

Informing the strategic agenda and promoting best practice:

- one to one-and-a-half hour talks for decision- and policy-makers
- half-day to one-day workshops for decision-makers and senior managers
- one- to two-day workshops for practitioners
- specialist colloquia

## Benchmarking

- further developing the database which enables mining companies and others to input safety, health, environmental and other data in order to benchmark their performance against that of other companies or entities
- publication of national occupational health and safety (OHS) statistics on the CMSI website

## Research

- topical and news – to support website and research resources
- papers on topical subjects
- research projects
- case studies
- short-term projects on issues related to sustainable development

## Consulting

- Consulting projects consistent with the centre's mandate

## Education and Training: Programme Leaders, Programme Development Associates and Resources

### Needs

Appointing programme leaders and content advisers for each of the centre's key areas of work, and developing formal

training materials, are now important for building the CSMI's capacity to fulfil its core mandate – to provide training and education.

It is proposed that programme leaders are appointed in the following areas:

- occupational environment and health
- safety and risk management
- the biophysical environment
- community investments
- sustainable development

It is envisaged that these appointments will be part-time, except for the director who will have responsibility for two programme areas. Furthermore, each programme leader will be supported by at least two content advisers. The programme leaders will co-ordinate the development and presentation of courses and will draw on the expertise of the advisers for content and materials review. Materials development will require sponsorship in the form of finance, human resources and access to research, practitioners and case studies.

It is further envisaged that a portion of each calendar year will be set aside for a particular focus area or areas, for example, occupational health and safety courses (the first three programme focus areas) are offered in the first half of the year; courses dealing with the bio-physical environment are offered in the third quarter; and courses dealing with community and sustainable development are offered in the last quarter.

### Short Term

The key priorities in the short term are to deliver on the existing course commitments and to expand the programme as far as possible. To date this process is on course. Planning and securing resources for the longer term is also critical to ensure movement towards a more predictable output cycle and to strengthen the services offered by the centre.

The main priorities in the short term are to:

- establish a long-term plan for the hosting and further development of the SHEC benchmarking database, documenting the various aspects of this activity formally, and developing a new budget for hosting arrangements, maintenance and outputs;
- develop the graduate diploma options by reviewing the available resources, building on the work done, and developing a way forward;
- start the documentation of best practice in the SHEC fields;
- initiate the research programme;
- build key relationships, for example, with Wits Enterprise, the University of Cape Town (UCT), the Council for Scientific and Industrial Research (CSIR), Mintek, the Australian Centre for Minerals Extraction and Research (ACMER), ACGM, the Minerals and Energy Education and Training Institute (MEETI), and Wise; and
- formalise the operating systems of the centre.

### The Education and Training Cycle

The following course cycle is proposed. The full cycle will take at least two years to establish but the foundations for the cycle will be laid during 2007. The courses include options to be offered every year (mainly those covering fundamental information and tools, with wide application) and others, either topical and or not in great demand (but still important), which will be offered less frequently.

#### First and second quarter:

- Occupational Safety and Health (which includes the work environment, occupational hygiene, and safety risk management)
  - Occupational Health and Safety Risk Management in Mining (and Industry)
  - Occupational Health Management – Systems, Exposure and Medical Surveillance

- Data and Information Management in Health, Safety and Work Environment
- Incident Investigation and Analysis
- Inspections and Audits
- Mine Ventilation – Heat and Cooling, Control of Airborne Hazards
- Topical issues in Occupational Health and Safety (OHS) (two to three courses per year, rotated through a cycle)
  - Role of Research in OHS Management – from benchmarking to risk assessment and investigation (two to five days)
  - Implementing HIV/AIDS Programmes in the Workplace (three days)
  - Risk Reduction and Technology (two to three days)
  - Controlling Falls of Ground and Seismicity (two to three days; addressing different environments)
  - Safety and Health Policy and Legislation – overview and current developments
  - International Developments, for example, the European Commission's Registration Evaluation and Authorisation of Chemicals (REACH) and the coal mining guideline of the International Labour Organisation (ILO)
  - Major Risks and Industrial Disaster Management
  - Fundamentals of Occupational Hygiene for Non-occupational Hygienists
  - Radiation Control in Mining Environments
  - Ergonomics
  - Occupational Safety
  - Dust Control
  - Noise Control

#### Third quarter

- Biophysical Environment
  - Environmental Impact Assessment and Environmental Management plans with reference to the

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responsibilities of the Department of Environmental Affairs and Tourism (DEAT), the Department of Water Affairs and Forestry (DWAF) and the Department of Minerals and Energy (DME) (five days, currently available as APES 508)

- Mine Closure / Rehabilitation of Industrial Sites (three to five days) (regional and local issues)
- The Environment and Water Management in Industry (five days)
- Topics in Environmental Management (two to three courses per year, rotated through a cycle)
  - Land footprint, Rehabilitation, Biodiversity and Land Use (two to three days)
  - Water – Impact, Recycling, Economic Opportunities, Clean-up (one to two days)
  - Using GIS in Environmental Management (one day /five days)
  - Cleaner Production and Health (two to three days)
  - Industry and Climate Change (two to three days)
  - The Cyanide Code

## Fourth quarter

- Community Investments
  - Community Development Strategies and Processes
  - Stakeholder Engagement (topical issues; one per year)
    - Case Studies in Community Development
    - Integrated Development Planning
    - Opportunities for Sustainability beyond Mining
- Issues in Sustainable Development
  - Social and Labour Plans
  - Mining and Sustainable Development (SD)
  - SD topics (two to three courses per year; rotated through a cycle)
    - Stakeholder Processes (one to one-and-a-half

days and two to three days)

- Women in Mining (two days)
- Opportunities for Supporting the Wider SD Agenda (two to three days)
- Sustainable Job Creation Opportunities

## The medium term (the present to 2010)

There are a number of priorities that require immediate attention.

- In respect of courses and colloquia, these are to:
  - implement the plan finalised in 2006;
  - test the plan for engaging decision- and policy-makers;
  - refine and amend CSMI's education and training model, as necessary;
  - plan and start development of new courses/ modules; and
  - finalise the programme for 2008.
- In respect of the benchmarking database, it is to finalise and implement the SHECbenchmarking plan.
- In respect of research, these are to:
  - place the research programme on a more formal footing by properly integrating current and potential projects in diesel particulates in coal, rehabilitation and community development; and
  - document and incorporate best practice into training courses and onto the website.
- In respect of operating systems, these are to:
  - formalise arrangements with key partners;
  - finalise needs analysis and environment scan (updating mechanism established);
  - contract providers in on three- to five-year cycles;
  - finalise web-site plan and continue implementation; and
  - finalise marketing strategy.

From 2008 to 2010 the priorities will be to build on 2007 activities, to assess and confirm financial viability strategy, and to assess and refine CSMI programmes. By 2009 the annual cycles for CSMI should be established, and only minor adjustments for appropriateness are envisaged, postgraduate programmes in SHEC fields should be established, and financial viability strategy should be in place. By 2010 the programmes of the CSMI should be firmly established and candidates should be emerging from MSc and PhD programmes.

## Finance, Resources and Capacity

### Seed funding

To date the activities of the centre have been supported through seed funding from:

- BHP Billiton – R750 000 a year over a five-year period from 2003 to 2008
- Lonmin – R150 000 over a three-year period from 2003 to 2006
- AngloGold Ashanti – R35 000 towards housing the CSMI\*
- Gold Fields – R35 000 towards housing the CSMI\*

\* The total housing cost is R100 000.

At present industry funding of R900 000 is available annually to the centre until the end of 2006. Thereafter, core funding drops to R750 000 a year until 2009. The 2006 level of funding covers the administrator's salary, the capital and operational expenditure of the CSMI, and part of the director's salary. Currently, the university funds the balance of the director's salary, officially employs the director, houses the centre at the School of Mining and provides oversight and administrative systems support such as financial systems support. In addition, academic staff present courses and participate in colloquia, on a 'fee for service' basis. (The centre's activities are not part of staff employment contracts.) This level of support and funding enables the centre to support the activities of a full-time director and

administrator, and to reach agreements for ad-hoc collaboration with individuals at other institutions. With core funding the centre will be able to meet the financial costs of running its office; expand its activities; undertake work towards formalising SHEC diplomas and degrees; outsource the tasks associated with conference organisation; and enter into longer term contracts with partners and specialists.

### Long-term financial sustainability

The overall financial (and operating) model for CSMI will be reviewed in 2008 to assess long-term funding needs, should there be a continued need for the centre.

### Funding options

The CSMI requires R3 million a year to be fully functional and to establish the programmes adequately. Costs related to programme development will fall away over time (within three to five years). To raise funding to the required level, formal fund-raising efforts are required and various funding options are proposed.

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## CSMI – direct sponsorship

Companies become direct sponsors of the CSMI and benefit as follows:

Sponsorship categories	Contribution level	Benefits
Platinum	R500 000 over three years (R167 000 per year)	Three places on all CPD courses and two at each colloquium and workshop Placement of logo on website, at courses and in annual report For a period of three years
Gold	R250 000 over two years (R125,000 per year)	Two places on all CDP courses and one at each colloquium and workshop Placement of logo on website, at courses and in annual report For a period of two years
Silver	R100 000 for one year	One place on all CPD courses Placement of logo on website, at courses and in annual report For a period of one year
Bronze	R10 000 for one year	One place on two CPD courses and mention in annual report For a period of one year

Programme development sponsorship on an annual basis for the next three years

Programme	Programme leader	Associate	Materials development	Total
Biophysical Environment	R227 500	R16 000	R105 000	R348 000
Occupational Medicine	R175 500	R16 000	R35 000	R226 000
Occupational Hygiene (Work Environment)	R195 000	R16 000	R35 000	R246 000
Sustainable Development		R16 000	R70 000	R86 000
Occupational Safety		R16 000	R70 000	R86 000
Totals	R598 000	R80 000	R315 000	R992 000



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## **SHECbenchmarking database**

Twenty sponsorships, at R25 000 each a year, are required for three years. Thereafter, having fully established the database, a self-funding business model will be implemented.

## **Secondees to develop course material and document best practice**

Sponsors of the CSMI could also support its activities in chosen areas by seconding experts in SHEC fields to assist in developing course material and case studies.

## **Building research capacity**

Sponsors of the CSMI could support the development of research capacity by placing projects with the centre which could support researchers on a medium-term basis or which could stimulate inter-faculty / cross-institutional co-operation.

## **Management Committee**

The Industry Management Committee of the CSMI comprises:  
Dr Frans Barker – Chamber of Mines of South Africa; Prof Kobus de Jager – Industry Co-Director, AngloGold Ashanti; Prof May Hermanus – Director; Mr Steve Lenahan – AngloGold Ashanti; Mr Henry Moorcroft, Gold Fields; Prof Huw Phillips – Wits School of Mining Engineering; Ms Elize Swart – Department of Minerals and Energy; Mr Andre van der Bergh – Chairman, BHP Billiton; National Union of Mineworkers Representative.

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