



# Investor CDP Information Request

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## CDP 2011

May 2011

Report compiled by

PROMETHIUM  
C A R B O N



## Module: Introduction

## Page: Introduction

## 0.1

**Introduction**

Please give a general description and introduction to your organization

Kumba Iron Ore Limited (herein referred to as Kumba), a member of the Anglo American plc group, is a leading value adding supplier of high quality iron ore to the global steel industry. It is the fourth largest supplier of seaborne iron ore in the world, exporting more than 34 million tonnes per annum to steelmakers in Europe, the Middle-East and Asia. The company currently operates two opencast mines, Sishen Mine and Thabazimbi Mine, with a third, Kolomela, on schedule to start production in 2012. Sishen and Thabazimbi produce more than 43Mt of iron ore per annum, which accounts for 81% of South Africa's total production and around 4% of the global seaborne trade. Kumba sells its products to most of the major steel mills in the world.

## 0.2

**Reporting Year**

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

**Enter Periods that will be disclosed**

Fri 01 Jan 2010 - Fri 31 Dec 2010

**Enter Periods that will be disclosed**

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**0.3**

**Country list configuration**

Please select the countries for which you will be supplying data. This selection will be carried forward to assist you in completing your response

**Select country**

South Africa

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**0.4**

**Currency selection**

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

ZAR (R)

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**0.5**

**Please select if you wish to complete a shorter information request**

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**0.6**

**Modules**

As part of the Investor CDP information request, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sectors and companies in the oil and gas industry should complete supplementary questions in addition to the main questionnaire.

If you are in these sectors (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will be marked as default options to your information request. If you want to query your classification, please email [respond@cdproject.net](mailto:respond@cdproject.net).

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below. If you wish to view the questions first, please see <https://www.cdproject.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

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## Further Information

**Module: Management [Investor]**

**Page: 1. Governance**

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### 1.1

**Where is the highest level of direct responsibility for climate change within your company?**

Individual/Sub-set of the Board or other committee appointed by the Board

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### 1.1a

**Please identify the position of the individual or name of the committee with this responsibility**

(i) Chairman of the Safety and Sustainability Development Committee

(ii) The Chairman of the committee is an independent non-executive director of the board. The other two members on the committee are also from the board.

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### 1.2

**Do you provide incentives for the management of climate change issues, including the attainment of targets?**

Yes

1.2a

Please complete the table

| Who is entitled to benefit from these incentives? | The type of incentives | Incentivised performance indicator  |
|---|------------------------|---|
| Energy managers                                   | Monetary reward        | Meeting emission reduction targets through energy saving initiatives in the individual's performance contract                                     |
| Environment/sustainability managers               | Monetary reward        | Meeting emission reduction targets through energy saving initiatives in the individual's performance contract                                     |
| Process operation managers                        | Monetary reward        | Meeting emission reduction targets through energy saving initiatives in the individual's performance contract                                     |
| Business unit managers                            | Monetary reward        | Meeting emission reduction targets through energy saving initiatives in the individual's performance contract                                     |
| Board/Executive board                             | Monetary reward        | Meeting emission reduction targets through energy saving initiatives in the individual's performance contract                                     |
|   | Monetary reward        | The General Managers of the Mines : Meeting emission reduction targets through energy saving initiatives in the individual's performance contract |

Further Information

Page: 2. Strategy

2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

2.1a

Please provide further details (see guidance)

In 2010 Kumba identified five environmental priorities using a risk-based approach and global trends, for management attention. These priorities have been integrated into Kumba's strategy and have thus influenced the strategy as follows: to invest more in pollution prevention technologies, from strategic partnerships, improve collaboration with government and other key stakeholders, and less on clean-up technologies.

The management of risk is critical to the success of Kumba as it is exposed to a wide variety of risks which can have a financial, operational and reputational impact on the group. Effective management of risk supports the delivery of Kumba's strategic objectives.

The approach to management of risk is to:

- Identify the key risks that could have a significant impact on the ability of the group to achieve its strategic objectives
- Analyse risks and controls
- Ensure that appropriate controls and responses are put in place to mitigate identified risks
- Monitor the effectiveness and implementation of controls
- Regular reporting to executive committee, risk committee and the board.

#### 1. Identification of risks

A consistently applied methodology is used to identify key risks at group business units, operations and projects. The risk management process is undertaken through a series of risk workshops at least annually at business units, sites and at key stages in projects. An update is performed frequently.

#### 2. Analysis of risks and controls

Once identified, the process will evaluate those risks to establish financial and non-financial impacts, likelihood of occurring and root causes. Consideration of current controls to mitigate those risks is also undertaken to enable a prioritised register of risks to be created.

#### 3. Determination of management actions required

If additional controls are required these will be identified and responsibilities assigned.

#### 4. Reporting and monitoring

Management is responsible for monitoring progress of actions to mitigate key risks and is supported through the group's internal audit programme which evaluates the design and effectiveness of controls to mitigate key risks. The results of the key risk management process are reported to the executive committee monthly and the risk committee and board every quarter.

Kumba maintains an Integrated Risk Management (IRM) programme which applies a logical, systematic and repetitive methodology to identify, analyse, assess, mitigate and monitor all risks, whether they are significant or not. This includes the risks presented by climate change.

The effectiveness of the IRM process is measured by how well it aligns the key fundamentals of governance, business objectives, ethics, policies, standards, strategies and compliance. Kumba recognises the complexity and diversity of risks that its operational activities face and integrates all efforts to maximise opportunities and minimise exposures to risk and reduce them, where necessary, to levels proportionate with its risk appetite.

The audit and risk committee plays a significant role in Kumba's risk response. Its primary role is to ensure the integrity of financial reporting and the audit process, and that a sound risk management process and effective systems of internal control are maintained. To this end, a monthly and quarterly risk review that covers both internal and external risks has been instituted with findings reported to the audit and risk committee.

The risk management process is ongoing, with well-defined steps, which support decision-making by contributing a greater insight into risks and their impacts. Risks from all sources are identified and once they pass the materiality threshold, linked to the financial performance of Kumba, a formal process begins in which causal factors and consequences are identified and the correlation with other risks and the current risk mitigating strategy is reviewed. One of the challenges is to ensure that mitigating strategies are geared to deliver reliable and timely risk information to support decision-making.

Environmental risks have been identified as one of Kumba's headline risks. CO<sub>2</sub> emissions (climate change and global warming) are one of the 5 environmental risks identified by Kumba. Opportunities relating to climate change are realised through emission reduction projects. Reducing either electricity or fuel consumption not only reduces the carbon footprint but also cost of operations. Reduction opportunities in energy are evaluated, as well as progress management through a steering committee comprising of Electrical Representatives, Fuels and Lubes Representatives, Mining Representatives and Process/Plant Representatives.

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## 2.2

**Is climate change integrated into your business strategy?**

Yes

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### 2.2a

**Please describe the process and outcomes (see guidance)**

- i. Kumba's Energy Team is responsible for assessing the company's progress and status regarding climate change. This Energy Team is governed by the Executive Head of Technical Services acting as the Energy/Water Champion, who will report on the findings and give the information through to the Executive Committee and Safety and Sustainable Development Committee of the Board, of which he is part. The Energy team has three bodies functioning at operation or project level. The three bodies are: the Measurement Team, Reporting Team and Improvement Team.

The Measurement Team consisting of four sub-teams: Electrical Representatives, Fuels and Lubes Representatives, Mining Representatives and Process/Plant Representatives. The measurement team is responsible for all measurements on the mines. The Measurement team reports to the Mine Manager acting as the Mine Energy Champion. The Reporting Team is governed by the Environmental Manager, who is responsible for all reporting requirements from the mines. The Reporting Team reports to the Executive Head of Sustainable Development, who is responsible for the overall Kumba sustainability reporting including the carbon disclosure project. The Executive Head of Sustainable Development offers input to Anglo American Group Sustainable Development. The Improvement Team (Kumba Project Services) manages a number of project teams at the mines. The Improvement Teams report to the Project Managers of the improvement projects. A monthly energy and environmental meeting is held by the Energy Champion where progress against targets and new projects regarding energy and the environment are discussed. The Mine Energy Champion reports to the Executive Head of Technical Services or Kumba Energy/Water Champion who serves on the Executive Committee. Kumba, as a

subsidiary, also has representation in the Anglo Group and thereby provides input to the Anglo Group Sustainable Development, including energy and climate change policy. The targets and plans from Kumba Head Office Energy Manager are shared with the Anglo Group Manager of Climate Change and Energy.

- ii. Kumba identified five climate priorities, using a risk-based approach and global trends, for management attention. These priorities have influenced Kumba's strategy as follows: to invest more in pollution prevention technologies, form strategic partnerships, improve collaboration with government and other key stakeholders, and less on clean-up technologies. The priorities and focus area are summarised as follows:

1: Energy and CO2 emissions management: Monitoring, measuring, reporting and target setting in line with outcomes of the Copenhagen Conference and the Anglo American strategy; Gap analysis using the Anglo American Group Technical Standard for energy and greenhouse gas emissions as a benchmark; Implementation of energy saving and energy efficiency projects; Investing in low carbon technology innovation such as: Power reduction on blowers; Regenerative braking on downward inclines; Optimization of quaternary crushers with variation in feed stockpile levels; Implementation of switch-off policy to reduce empty running time; Operational control optimization using technologies such as the diesel energy efficiency management system.

2: Water management: Monitoring, measuring, reporting and target setting; Gap analysis using the Anglo American water technical standard as a benchmark; Implementation of water saving and water efficiency projects

3: Assurance: Licensing of listed activities and compliance to obligations; Stakeholder management; Audits, reviews and self-assessment; Monitoring and reporting

4: Remediation and pollution prevention: Remediation of historical impacts; Training and awareness; Gap analysis on pollution prevention; preventing pollution

5: Land management and biodiversity: Implementation of approved land uses on Kumba owned farms; Updating closure costing and closure plans; Implementation of biodiversity action plans; Physical rehabilitation of waste rock dumps,

Kumba is revising its energy management programme to align it with Anglo American's revised requirements. The main target was determined by the Energy Efficiency Accord, as follows: energy and CO2 targets are reductions of 1.5% and 1% per annum respectively over a 10-year period based on 2004 energy consumption. These targets were set without taking changing mine conditions into consideration. Intensity targets meant if consumption increased through factors other than increasing final product, the targets could not be met. The operations tried to

manage this by introducing baseline modifications using the “FOOTPRINT” model. The model was used to modify consumption by adding factors of production and uncontrollable variables (e.g. haul distance, stripping ratio and yield). The advantage is that efficiency improvements became demonstrable.

Unfortunately the model had disadvantages as it needed to be constantly adjusted to factor in changes at the operational level, only allowed for one uncontrolled variable per operational area and resulted in savings being lost when too many operational changes took place. Thus Anglo American decided to develop a clear policy and strategy on energy and climate change. Initial focus will be on performance improvement, followed by innovation in order to reduce consumption and emissions.

- iii. The first phase of the strategy is focused on becoming disciplined and includes the following elements:
- Roll out of a metering, monitoring, reporting, target setting and verification programme that will determine carbon and energy performance management standards and will be used to set targets
  - Ensuring that the cost of carbon informs business decisions
  - Using regional climate models to identify key site adaptation requirements
  - Evaluating value-added services, including synergy and product market risks and opportunities
  - Cooperating with government and industry to examine responsible carbon policies.

The next phase – the proactive period – is the medium term focus of the strategy where piloting inroads on carbon and energy savings should become the norm. Therefore the focus will be on new techniques and new technologies. Key elements of this period will be:

- Use of carbon markets to minimise cost of compliance
- Factoring of climate adaptation measures into business plans
- Formation of low-carbon technology partnerships with key stakeholders
- Implementation of carbon offset projects
- Investing in energy and carbon saving projects.

- iv. The final phase, building resilience, is the long term focus of the strategy where breaking new ground will take place. Key elements are as follows:
- Partnering with stakeholders on carbon reducing projects
  - Embedding carbon and energy savings culture in the workforce
  - Investing in low carbon technology innovation.
- v. Kumba believes that a well-conceived and executed environmental strategy provides a competitive advantage. The strategy aims to position the company as a proactive responsible corporate which acts beyond legislative compliance. Marketing of iron with a lower carbon footprint will be a competitive advantage as consumers become more aware of climate change and its impacts.
- vi. There were no business decisions that were made based on the climate aspects; however there is one in process that will be a business decision in 2011.

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2.2b

Please explain why not

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2.3

**Do you engage with policy makers to encourage further action on mitigation and/or adaptation?**

Yes

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2.3a

**Please explain (i) the engagement process and (ii) actions you are advocating**

## **(i) Engagement process**

Kumba has taken part in different methods of engagement, both direct engagements as an individual company and as part of the Anglo American Group. As a subsidiary of Anglo American plc, Kumba benefits from its engagement on the: Energy Intensive Users Group, Industry Task Team on Climate Change, Chamber of Mines and Business Unity South Africa); and, Business Based NGOs i.e. the National Business Initiative.

The significant topics of engagement were the Climate Change Response Strategy Green Paper released by Department of Environmental Affairs, and National Treasury's discussion paper with regard to a proposed carbon tax option for the South African economy. The nature of this engagement is through responding to formal requests for inputs in Government led consultation processes.

The overarching approach being taken by the Anglo American Group, and Kumba as one of its business units, towards the emerging regulatory environment for climate change in South Africa, is guided by the following principles:

- The need for a stable, effective and predictable regulatory framework that will reduce carbon emissions as guided by the country's international commitments;
- Having an engaged partnership with the Government in developing an effective climate change response for South Africa; and,
- Ensuring that climate change policy is assessed within the context of the country's broader developmental goals particularly those with regard to job creation and economic growth.

## **(ii) Actions Advocated**

In terms of actions advocated then following recommendations have been made to Government:

- On Mitigation – the need for further emphasis on regulatory reform for Independent Power Producers (IPPs) in order to stimulate renewable energy generation.
- On Adaptation – climate change policy must ensure the country is “climate ready”, which includes the need for adaptation measures to address the physical impacts of climate change.

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**Further Information**

**Page: 3. Targets and Initiatives**

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**3.1**

**Did you have an emissions reduction target that was active (ongoing or reached completion) in the reporting year?**

Intensity target

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**3.1a**

**Please provide details of your absolute target**

| ID | Scope | % of emissions in scope | % reduction from base year | Base year | Base year emissions (metric tonnes CO2e) | Target year | Comment |
|----|-------|-------------------------|----------------------------|-----------|--|-------------|---------|
|    |       |                         |                            |           |  |             |         |

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**3.1b**

**Please provide details of your intensity target**

| ID | Scope     | % of emissions in scope | % reduction from base year | Metric   | Base year | Base year emissions (metric tonnes CO2e) | Target year | Comment   |
|----|-----------|-------------------------|----------------------------|--|-----------|--|-------------|---|
|    | Scope 1+2 | 100%                    | 10%                        | metric tonnes CO2e per metric tonne of product | 2004      | 477454                                   | 2014        | Emission reduction target is on an adjusted baseline. For the purpose of this target, Scope 1 refers to diesel only. (It excludes the GHG emissions produced from explosive detonation) |

### 3.1c

Please also indicate what change in absolute emissions this intensity target reflects

| ID | Direction of change anticipated in absolute Scope 1+2 emissions at target completion? | % change anticipated in absolute Scope 1+2 emissions | Direction of change anticipated in absolute Scope 3 emissions at target completion? | % change anticipated in absolute Scope 3 emissions | Comments   |
|----|---|--|---|--|--|
|    | Increase  | 31%  |   |  | A project that was implemented at Sishen mine realised a saving in 2010. The replacement of a dust extraction system with a dust suppression system realised some savings during the last two months of 2010. A total saving of about 947MWh was achieved. |

### 3.1d

Please provide details on your progress against this target made in the reporting year

| ID | % complete (time) | % complete (emissions) | Comment   |
|----|-------------------|------------------------|---|
|    | 60%               | 1.4%                   | Emission targets to be revised as a part of the Anglo American Group carbon initiative. |

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3.1e

Please explain (i) why not; and (ii) forecast how your emissions will change over the next five years

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3.2

Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

No

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3.2a

Please provide details (see guidance)

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3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes

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3.3a

Please provide details in the table below

| Activity type | Description of activity | Annual monetary savings (unit currency) | Investment required (unit currency) | Payback period |
|---------------|-------------------------|---|-------------------------------------|----------------|
|---------------|-------------------------|---|-------------------------------------|----------------|

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| Activity type                        | Description of activity   | Annual monetary savings (unit currency) | Investment required (unit currency) | Payback period |
|--------------------------------------|---|---|-------------------------------------|----------------|
| Low carbon energy installation       | Solar water heating – Kumba rolled out it's first project of placing solar water heaters at the mine kitchens and bathrooms. This forms part of Kumba's Scope 2 emissions and is a voluntary initiative.  |   |                                     | >3 years       |
| Low carbon energy installation       | Installation of a new dust suppression system started in early 2010. Altogether 83% of the anticipated electricity savings from this project were realised by the end of the year. The savings were as a result of the new suppression system having smaller motors than the old extraction system. The final units will be fully commissioned by end of January 2011. Upon verification of the savings, Kumba will receive up to R2 million of funding from Eskom as part of its demand side management programme. This forms part of Kumba's Scope 2 emissions and is a voluntary initiative.   |   |                                     | >3 years       |
| Low carbon energy installation       | Installation of heat pumps at the Thabazimbi Mine change houses was completed during the year. Measurement and verification of the savings will be done in early 2011. Eskom agreed in a meeting held in December 2010 to partially fund heat pumps at the Sishen Mine change houses. This project will start in 2011. This forms part of Kumba's Scope 2 emissions and is a voluntary initiative.  |   |                                     | >3 years       |
| Energy efficiency: building services | Replacing incandescent lights with CFLs. LED lights were investigated in 2008 but high capital cost and poor light output resulted in a decision not to continue with this technology. Due to improvements in LED technology, a decision was made in 2010 to look at it again. LED lights from two different manufacturers were installed in offices at Sishen Mine for testing. Evaluations showed that the new generation LED lights supply adequate lighting. Eskom agreed to provide partial funding for the installation of LED lighting. This forms part of Kumba's Scope 2 emissions and is a voluntary initiative. In 2009 the standard lump ore DMS flow line of the plant at Thabazimbi Mine was simplified by combining the dense medium and densifier lines and by removing some equipment from the diluted medium line. A unique arrangement was used to feed the densifier by gravity. This has reduced ferrosilicon consumption, water consumption and energy consumption. The same modification is currently underway in the fine ore line in the cyclone plant. Possible savings will be quantified. This forms part of Kumba's Scope 2 emissions and is a voluntary initiative. |   |                                     | >3 years       |
| Energy efficiency: processes         | In 2009 the standard lump ore DMS flow line of the plant at Thabazimbi Mine was simplified by combining the dense medium and densifier lines and by removing some equipment from the diluted medium line. A unique arrangement was used to feed the densifier by gravity. This has reduced ferrosilicon consumption, water consumption and energy consumption. The same modification is currently underway in the fine ore line in the cyclone plant. Possible savings will be quantified. This forms part of Kumba's Scope 2 emissions and is a voluntary initiative.  |   |                                     | >3 years       |
| Transportation: fleet                | The Diesel Energy Efficiency Management System (DEEMS) contract was renegotiated and renewed in 2010. The system was used during 2010 to track diesel performance and to log and  |   |                                     | >3 years       |

| Activity type | Description of activity  | Annual monetary savings (unit currency) | Investment required (unit currency) | Payback period |
|---------------|--|---|-------------------------------------|----------------|
|               | track interventions. The DEEMS system is reporting a saving of 1 494 693 litres for the year 2010. This forms part of Kumba's Scope 3 emissions and is a voluntary initiative. |   |                                     |                |

### 3.3b

What methods do you use to drive investment in emissions reduction activities?

| Method                              | Comment |
|-------------------------------------|---------|
| Financial optimization calculations |         |

### 3.3c

If you do not have any emissions reduction initiatives, please explain why not

### Further Information

[Page: 4. Communication](#)

### 4.1

Have you published information about your company's response to climate change and GHG emissions performance for this reporting year in other places than in your CDP response? If so, please attach the publication(s)

| Publication                  | Page/Section Reference      | Identify the attachment       |
|------------------------------|-----------------------------|-------------------------------|
| In annual reports (complete) | Responsibility Report pg 55 | Responsibility Report page 55 |

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**Further Information**

**Attachments**

[https://www.cdproject.net/Sites/2011/50/10350/Investor CDP 2011/Shared Documents/Attachments/InvestorCDP2011/4.Communication/Responsibility Report 2010 page 55.pdf](https://www.cdproject.net/Sites/2011/50/10350/Investor%20CDP%202011/Shared%20Documents/Attachments/InvestorCDP2011/4.Communication/Responsibility%20Report%202010%20page%2055.pdf)

**Module: Risks and Opportunities [Investor]**

**Page: 5. Climate Change Risks**

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**5.1**

**Have you identified any climate change risks (current or future) that have potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply**

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

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**5.1a**

**Please describe your risks driven by changes in regulation**

| ID | Risk driver  | Description  | Potential impact           | Timeframe | Direct/ Indirect | Likelihood           | Magnitude of impact |
|----|--------------|--|----------------------------|-----------|------------------|----------------------|---------------------|
|    | Carbon taxes | The mining sector in South Africa is at strong risk from climate change regulation, predominantly in light of the conditional emission reduction target committed to under the Copenhagen Accord in January 2010. South Africa | Increased operational cost | 1-5 years | Direct           | More likely than not | Low-medium          |

| ID | Risk driver | Description  | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact |
|----|-------------|--|------------------|-----------|------------------|------------|---------------------|
|    |             | is considering the introduction of a carbon tax in order to fulfil the conditional pledge intention made under the Copenhagen Accord. The carbon tax proposals are detailed in a discussion paper published by National Treasury titled "Reducing Greenhouse Gas Emissions: The Carbon Tax Option" (2010). The Carbon Tax Discussion Paper explores three options for imposing a carbon tax and declares that "a tax of R75 per ton of CO2 and with an increase to around R200 per ton CO2 would be both feasible and appropriate to achieve the desired behavioural changes and emission reduction targets". The three possible tax types proposed by the National Treasury in the Carbon Tax Discussion Paper are: • An emissions tax applied directly on measured carbon dioxide emissions; • An upstream tax on fossil fuel inputs based on the carbon content of the fuel (for example, coal); or • A downstream tax imposed on the outputs or products generated from fossil fuels (for example, electricity or liquid fuels). The high carbon intensity associated with South Africa's electricity grid and the energy intensive nature of mining operations, places Kumba at significant risk for carbon taxation. |                  |           |                  |            |                     |

### 5.1b

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; and (iii) the costs associated with these actions

#### Carbon Taxes

##### (i) The potential financial implications of the risk before taking action

A carbon tax would have a negative effect on Kumba's operating costs and margins, particularly since diesel and electricity costs are increasing. The increase is due to higher waste stripping relative to product tonnes. The financial impact of this risk was calculated by multiplying the carbon intensity (0.0203 tonnes CO2e per tonne of product) by the price of carbon, which was assumed to be approximately R100 per tonne of CO2e. This amounts to a % selling price of 1.4% which implies that this risk has a low financial impact for Kumba.

##### (ii) The methods you are using to manage this risk

Kumba's response, as a business unit of Anglo American Group, is based on the Group's strategy and therefore the methods to respond to this specific risk are a part of the overall Group approach to this risk which is a global one, not one that is unique to South Africa. In the first phase this involves the piloting and subsequent implementation of a new carbon and energy management tool that will ensure that every site understands the cheapest methods it can employ to save energy and carbon. This will ensure that business units know where they are so that they can determine future options. The tool will also assist in ensuring that the potential impact of carbon taxes is understood at an operational level, risk mitigation measures are developed (e.g. minimizing exposure to and the cost of compliance) and the cost of carbon is integrated into all business decisions. Kumba will work with organized business and government to develop a responsible and practical approach to the carbon tax and pricing issue.

Kumba is aware of the potential increasing operating costs because of taxes. There are the following saving options that are being investigated:

#### **SAVING OPTIONS TO BE INVESTIGATED**

- **Plant side**
  - Energy efficiency projects
  - Asset optimisation projects
- **Mining side**
  - Fuel switching
  - Operational savings on diesel. The Diesel Energy Efficiency Management System (DEEMS) contract was renegotiated and renewed in 2010. The system was used during 2010 to track diesel performance and to log and track interventions. The DEEMS system is reporting a saving of 1 494 693 litres for the year 2010.
- **Off-sets**
  - CO<sub>2</sub> sinks (e.g. planting trees)
  - Solar water heating

The next steps involve:

1. Emission reduction opportunities study at Sishen to be implemented in May 2011
2. The rollout of the new protocol as part of the new Anglo American strategy will be done at Thabazimbi by May 2011 & Kolomela mine by Sep 2011.

It is evident that there is a significant gap between possible energy saving projects and targets. Thus in order to manage the risk, Kumba is currently investigating the opportunities offered by renewable energy. Plans exist to engage with Eskom to set up a Power Purchase Agreement to purchase power at rates similar to refit tariff - wheeling costs will be payable. The current study on fuel switching, plans to include switching to renewable energy. Kumba will also continue to investigate the most appropriate renewable energy alternative and how to influence it to get maximum benefit. Further potential saving prospects from improving fleet efficiency (Gigajoules per tonne of material moved) will be considered.

Kumba is actively participating in the carbon tax debate in order to impress on the Government the potential impact it will have on the international competitiveness of the South African mineral export industry.

### **(iii) The costs associated with these actions**

The Anglo American Group Climate Change and Energy Strategy has a 10 year time horizon and there will be annual costs associated with the ongoing development and implementation of the carbon and energy management tool, as well as the capital costs of projects implemented in response to the strategy. The nature, and costs, of these projects will emerge as the strategy is implemented.

The cost of managing this risk is incorporated in the day to day risk management costs of the business.

5.1c

Please describe your risks that are driven by change in physical climate parameters

| ID | Risk driver                                   | Description   | Potential impact                            | Timeframe | Direct/<br>Indirect | Likelihood           | Magnitude<br>of impact |
|----|---|---|---|-----------|---------------------|----------------------|------------------------|
|    | Change in precipitation extremes and droughts | <p>The uncertainty of various physical climate change impacts could affect Kumba in the following ways:</p> <ul style="list-style-type: none"> <li>i. Wet weather causes disruption of production/operation. Opencast mines cannot continue to mine in extreme wet conditions. Currently Kumba is dewatering at some of its operations in order to be able to mine. Heavy rainfall could increase pore water pressure in soils leading to slope instability and possible slope failure</li> </ul> | Reduction/disruption in production capacity | Unknown   | Direct              | More likely than not | Unknown                |

| ID | Risk driver | Description   | Potential impact | Timeframe | Direct/<br>Indirect | Likelihood | Magnitude<br>of impact |
|----|-------------|---|------------------|-----------|---------------------|------------|------------------------|
|    |             | <p>ii. The increased frequency of extreme weather events could negatively impact the operations of ports and harbours-affecting the export of iron ore</p>  |                  |           |                     |            |                        |
|    |             | <p>iii. Community vulnerability to climate change</p> <ul style="list-style-type: none"> <li>• Drought is a problem for the community around Sishen mine as the Sishen mine is located in a desert. It creates a problem with the sustainability of the surrounding communities which are the backbone of the Kumba workforce.</li> <li>• Climate change is likely to result in the spread of tropical diseases, such as malaria affecting particularly the Thabazimbi mine and surrounding community. Currently the Malaria zone is more than 300km away.</li> </ul> |                  |           |                     |            |                        |
|    |             | <p>iv. Risk to infrastructure</p> <ul style="list-style-type: none"> <li>• Disruptions to electricity supply, possibly as a result of infrastructure damage due to</li> </ul>   |                  |           |                     |            |                        |

| ID | Risk driver | Description  | Potential impact | Timeframe | Direct/<br>Indirect | Likelihood | Magnitude<br>of impact |
|----|-------------|--|------------------|-----------|---------------------|------------|------------------------|
|    |             | <p>storms, are a great risk. When there is no electricity, then diesel would have to be used, which is a much more expensive replacement.</p> <ul style="list-style-type: none"> <li>The transport of iron ore by rail and harbours could be affected due to infrastructure damage cause by extreme weather events.</li> </ul> |                  |           |                     |            |                        |

5.1d

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; and (iii) the costs associated with these actions

**(i) The potential financial implications of the risk before taking action**

Though the inherent uncertainty surrounding this risk makes it difficult to quantify the financial implications, any damage to assets and/or disruptions to production will have severe financial implications.

Disruptions to electricity supply, possibly as a result of infrastructure damage due to storms, are a great risk. When there is no electricity, then diesel would have to be used, which is a much more expensive replacement. The export orientated nature of the

product exposes a logistical risk at railway, road and harbour infrastructure, although this would, in most cases, have financial implications for the clients.

**(ii) The methods you are using to manage this risk**

Kumba’s response, as a business unit of Anglo American Group, is based on the Group’s strategy and therefore the methods to respond to this specific risk are a part of the overall Group approach to this risk which is a global one, not one that is unique to South Africa. By the end of 2013 a climate adaptation plan for Kumba, detailing the risks and associated mitigation plans, will have been put in place supported by the development of a regional climate model which will have been used to identify key site adaptation requirements.

**(iii) The costs associated with these actions**

The Anglo American Group Climate Change and Energy Strategy has a 10 year time horizon. Over the 10 years there will be ongoing costs for designing, managing and implementing the adaptation plans (including the development of regional climate models), as well as the capital costs associated with adaptation measures being designed into business plans.

5.1e

Please describe your risks that are driven by changes in other climate-related developments

| ID | Risk driver | Description   | Potential impact   | Timeframe | Direct/ Indirect | Likelihood           | Magnitude of impact |
|----|-------------|---|--------------------|-----------|------------------|----------------------|---------------------|
|    | Reputation  | The reputational risks associated with non-disclosure or lack of attention to climate change is significant to Kumba’s business. If | Reduced demand for | 1-5 years | Direct           | More likely than not | Medium              |

| ID | Risk driver | Description  | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact |
|----|-------------|--|------------------|-----------|------------------|------------|---------------------|
|    |             | Kumba's response to climate change is perceived to be insufficient, particularly in comparison with the response of other listed mining companies, it could face reputational risks. Reputational damage with regards to civil society will impact on their ability to gain future environmental approvals and reputational damage will cause investors to withhold money from Kumba if it wants to expand its operations. | goods/services   |           |                  |            |                     |

5.1f

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; (iii) the costs associated with these actions

**(i) The potential financial implications of the risk before taking action**

The reputational risks associated with non-disclosure or lack of attention to climate change is significant to Kumba's business. If Kumba's response to climate change is perceived to be insufficient, particularly in comparison with the response of other listed mining companies, it could face reputational risks. Any drop in demand for iron would have severe implications for the operations.

**(ii) The methods you are using to manage this risk**

This risk has been identified for action by Kumba in the Anglo American Climate Change and Energy Strategy. This will involve an assessment of risks and the development of an action plan by the end of 2013.

Kumba has emission reduction targets, which illustrate that it is taking climate change seriously. To manage its reputational risk, Kumba continues to participate in the Carbon Disclosure Project and other similar initiatives to ensure that the lessons learnt are shared, and to learn from others in terms of managing Kumba's carbon footprint. Kumba reviewed the feedback from the 2009 CDP evaluation and

discusses the various results and approaches within the Anglo American subsidiary companies. There were no costs associated with the above mentioned actions.

Kumba is part of, and participates in the International Organisation of Standardisation (ISO) technical committees, but Kumba pays no fee for such participation.

**(iii) The costs associated with these actions**

The Anglo American Group Climate Change and Energy Strategy has a 10 year time horizon and there will be annual costs associated with managing any action plans developed.

---

5.1g

Please explain why you do not consider your company to be exposed to risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

---

5.1h

Please explain why you do not consider your company to be exposed to risks driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

5.1i

Please explain why you do not consider your company to be exposed to risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

**Further Information**

**Page: 6. Climate Change Opportunities**

6.1

**Have you identified any climate change opportunities (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply**

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

6.1a

**Please describe your opportunities that are driven by changes in regulation**

| ID | Opportunity driver       | Description  | Potential impact          | Timeframe | Direct/Indirect | Likelihood           | Magnitude of impact |
|----|--------------------------|--|---------------------------|-----------|-----------------|----------------------|---------------------|
|    | International agreements | South Africa is a non-Annex I country which ratified the Kyoto Protocol. It is therefore possible for companies to register Clean Development Mechanism (CDM) projects in South Africa. These can result in carbon credits for the registering company generating an additional income stream. | Reduced operational costs | Current   | Direct          | More likely than not | Medium              |

---

**6.1b**

**Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions**

International Agreements Carbon credits would result in an additional income stream for Kumba. Management actions are ongoing in terms of identification and implementation of energy saving and efficiency initiatives and research into viable renewable sources. In terms of CDM projects, Kumba is in the process of integrating CDM opportunities into projects, with the possibility for future carbon trading benefits brought by this. The investigation of these opportunities and the potential financial implications lies within the domain of Anglo American and the financial implications and costs associated can not yet be quantified. There are currently no costs associated with these actions.

---

**6.1c**

**Please describe the opportunities that are driven by changes in physical climate parameters**

| ID | Opportunity driver              | Description   | Potential impact          | Timeframe | Direct/ Indirect        | Likelihood | Magnitude of impact |
|----|---------------------------------|---|---------------------------|-----------|-------------------------|------------|---------------------|
|    | Change in precipitation pattern | Climate change studies show that rainfall is likely to decrease in the areas in which Kumba operates. | Reduced operational costs | Unknown   | Indirect (Supply chain) | Unknown    | Medium              |

---

**6.1d**

**Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions**

(i) the potential financial implications of the opportunity before taking action; Kumba's mining operations would benefit from dryer conditions, as this would mean that less dewatering is required. Kumba could expand its current stakeholder engagement policy to support its neighbouring communities, which are likely to be vulnerable to the impacts of climate change. A reduction in dewatering requirements would result in cost savings for Kumba. Mining and dewatering go hand in hand. The mine's environmental management plan and water use licence cater for and allow for dewatering. The dewatering activities result in a cone of depression around the dewatering wells and thus a lowering of the water levels in the immediate area. This impacts negatively on some landowners within the cone of depression as water levels in boreholes drop such that farmers are not able to cultivate and water their livestock. Some of the farmers around Sishen Mine have been impacted and these are being compensated in the form of a grazing subsidy and provision of water from alternative sources. Kumba has appointed a full-time member of staff to liaise with the affected farmers – Kumba recognises that as much as this issue is about dewatering and its impacts, it is also about people's livelihoods, their sense of security and the manner in which Kumba conducts itself. (ii) the methods you are using to manage this opportunity and Management

actions are ongoing in terms of identification and implementation of energy saving and efficiency initiatives and research into viable renewable sources. (iii) the costs associated with these actions Details are not available at this stage

6.1e

**Please describe the opportunities that are driven by changes in other climate-related developments**

| ID | Opportunity driver          | Description   | Potential impact                                | Timeframe  | Direct/ Indirect  | Likelihood | Magnitude of impact |
|----|-----------------------------|---|---|------------|-------------------|------------|---------------------|
|    | Changing consumer behaviour | Increased market for steel in renewable energy projects (wind and solar) will impact positively on the iron ore market. Kumba is participating in a study to investigate renewable energy options | Increased demand for existing products/services | 6-10 years | Indirect (Client) | Likely     | Medium              |

6.1f

**Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions**

Kumba's Sishen and Kolomela Mines are located in an area with abundant sunshine throughout the year. This on its own presents an opportunity for solar as an alternative energy source, which Kumba is currently investigating. This could result in Kumba saving electricity costs of over R4 billion. Solar water heaters have already been incorporated in the Kumba housing project. Kumba is participating in a study to investigate renewable energy opportunities. If successful, the use of solar power would result in savings due to the fact that less electricity will be purchased from Eskom. There are no costs associated with studying renewable energy opportunities.

6.1g

**Please explain why you do not consider your company to be exposed to opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure**

6.1h

Please explain why you do not consider your company to be exposed to opportunities driven by physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

6.1i

Please explain why you do not consider your company to be exposed to opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

#### Further Information

**Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading [Investor]**

**Page: 7. Emissions Methodology**

7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

| Base year                         | Scope 1 Base year emissions (metric tonnes CO2e) | Scope 2 Base year emissions (metric tonnes CO2e) |
|-----------------------------------|--|--|
| Thu 01 Jan 2004 - Fri 31 Dec 2004 | 151507   | 325947   |

7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

ISO 14064-1

7.2a

If you have selected "Other", please provide details below

7.3

Please give the source for the global warming potentials you have used

| Gas | Reference                                     |
|-----|---|
| CO2 | IPCC Third Assessment Report (TAR - 100 year) |

7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data

| Fuel/Material/Energy        | Emission Factor | Unit                                | Reference          |
|-----------------------------|-----------------|-------------------------------------|--------------------|
| Diesel/Gas oil              | 2.70            | metric tonnes CO2e per m3           | Anglo American plc |
| Motor gasoline              | 2.61            | metric tonnes CO2e per m3           | Anglo American plc |
| Electricity                 | 1.00            | metric tonnes CO2 per MWh           | Anglo American plc |
| Other: Explosive Detonation | 0.17            | metric tonnes CO2e per metric tonne | Anglo American plc |

Further Information

Page: 8. Emissions Data - (1 Jan 2010 - 31 Dec 2010)

---

8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

---

8.2a

Please provide your gross global Scope 1 emissions figure in metric tonnes CO2e

329906

---

8.2b

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 1 breakdown

| Boundary | Gross global Scope 1 emissions (metric tonnes CO2e) | Comment |
|----------|---|---------|
|----------|---|---------|

---

8.2c

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 1 Total

| Gross global Scope 1 emissions (metric tonnes CO2e) - Total Part 1 | Comment |
|--|---------|
|--|---------|

---

8.2d

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e - Part 2

| Gross global Scope 1 emissions (metric tonnes CO2e) - Other operationally controlled entities, activities or facilities | Comment |
|---|---------|
|---|---------|

---

---

**8.3a**

**Please provide your gross global Scope 2 emissions figure in metric tonnes CO2e**

507567

---

**8.3b**

**Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 1 breakdown**

| Boundary | Gross global Scope 2 emissions (metric tonnes CO2e) | Comment |
|----------|---|---------|
|----------|---|---------|

---

**8.3c**

**Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 1 Total**

| Gross global Scope 2 emissions (metric tonnes CO2e) - Total Part 1 | Comment |
|--|---------|
|--|---------|

---

**8.3d**

**Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e - Part 2**

| Gross global Scope 2 emissions (metric tonnes CO2e) - Other operationally controlled entities, activities or facilities | Comment |
|---|---------|
|---|---------|

---

**8.4**

---

Are there are any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

8.4a

Please complete the table

| Reporting Entity | Source | Scope | Explain why the source is excluded |
|------------------|--------|-------|------------------------------------|
|------------------|--------|-------|------------------------------------|

8.4

Are there are any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

Yes

8.4a

Please complete the table

| Source      | Scope         | Explain why the source is excluded  |
|-------------|---------------|---|
| Head Office | Scope 1 and 2 | The emissions associated with electricity used and business travel at Head Office is considered immaterial. |

8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and Scope 2 figures that you have supplied and specify the sources of uncertainty in your data gathering, handling, and calculations

| Scope   | Uncertainty Range        | Main sources of uncertainty  | Please expand on the uncertainty in your data  |
|---------|--------------------------|--|--|
| Scope 1 | Less than or equal to 2% | Other: If any manual data capturing/reporting takes place, there is the possibility of human error occurring | An expression of reasonable assurance was given by the independent auditor (PWC) on the total CO2 emissions from processes and fossil fuels. Hence this data is considered to be reasonably accurate.  |
| Scope 2 | Less than or equal to 2% | Metering/ Measurement Constraints  | Electricity data is based on Eskom invoices which is generated from the actual metering of the electricity consumption, hence this data has a high degree of accuracy. The independent auditor (PWC) gave an expression of reasonable assurance on the CO2 emissions from electricity purchased. |

## 8.6

### Please indicate the verification/assurance status that applies to your Scope 1 emissions

Verification or assurance complete

## 8.6a

### Please indicate the proportion of your Scope 1 emissions that are verified/assured

More than 90% but less than or equal to 100%

## 8.6b

### Please provide further details of the verification/assurance undertaken, and attach the relevant statements

| Type of verification or assurance | Relevant standard | Relevant statement attached                             |
|-----------------------------------|-------------------|---|
| Reasonable assurance (qualified)  | ISAE 3000         | Assurance Statement from responsibility report attached |

## 8.7

**Please indicate the verification/assurance status that applies to your Scope 2 emissions**

Verification or assurance complete

---

**8.7a**

**Please indicate the proportion of your Scope 2 emissions that are verified/assured**

More than 90% but less than or equal to 100%

---

**8.7b**

**Please provide further details of the verification/assurance undertaken, and attach the relevant statements**

| Type of verification or assurance | Relevant standard | Relevant statement attached                             |
|-----------------------------------|-------------------|---|
| Reasonable assurance (qualified)  | ISAE 3000         | Assurance Statement from responsibility report attached |

---

**8.8**

**Are carbon dioxide emissions from the combustion of biologically sequestered carbon (i.e. carbon dioxide emissions from burning biomass/biofuels) relevant to your company?**

No

---

**8.8a**

Please provide the emissions in metric tonnes CO<sub>2</sub>e

---

**Further Information**

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**Attachments**

[https://www.cdproject.net/Sites/2011/50/10350/Investor CDP 2011/Shared Documents/Attachments/InvestorCDP2011/8.EmissionsData\(1Jan2010-31Dec2010\)/Assurance Statement 2010.pdf](https://www.cdproject.net/Sites/2011/50/10350/Investor%20CDP%202011/Shared%20Documents/Attachments/InvestorCDP2011/8.EmissionsData(1Jan2010-31Dec2010)/Assurance%20Statement%202010.pdf)

---

**Page: 9. Scope 1 Emissions Breakdown - (1 Jan 2010 - 31 Dec 2010)**

---

**9.1**

**Do you have Scope 1 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?**

No

---

**9.1a**

Please complete the table below

| Country | Scope 1 metric tonnes CO <sub>2</sub> e |
|---------|---|
|---------|---|

---

**9.2**

**Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)**

By facility

By GHG type

---

**9.2a**

Please break down your total gross global Scope 1 emissions by business division

| Business Division | Scope 1 metric tonnes CO <sub>2</sub> e |
|-------------------|---|
|-------------------|---|

---

**9.2b**

Please break down your total gross global Scope 1 emissions by facility

| Facility        | Scope 1 metric tonnes CO2e |
|-----------------|----------------------------|
| Thabazimbi Mine | 30150                      |
| Sishen Mine     | 274368                     |
| Kolmela Mine    | 25388                      |

---

**9.2c**

Please break down your total gross global Scope 1 emissions by GHG type

| GHG type | Scope 1 metric tonnes CO2e |
|----------|----------------------------|
| CO2      | 329906                     |

---

**9.2d**

Please break down your total gross global Scope 1 emissions by activity

| Activity | Scope 1 metric tonnes CO2e |
|----------|----------------------------|
|----------|----------------------------|

---

**Further Information**

[Page: 10. Scope 2 Emissions Breakdown - \(1 Jan 2010 - 31 Dec 2010\)](#)

---

**10.1**

Do you have Scope 2 emissions sources in more than one country or region (if covered by emissions regulation at a regional level)?

No

---

10.1a

Please complete the table below

| Country | Scope 2 metric tonnes CO2e |
|---------|----------------------------|
|---------|----------------------------|

---

10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By facility

---

10.2a

Please break down your total gross global Scope 2 emissions by business division

| Business division | Scope 2 metric tonnes CO2e |
|-------------------|----------------------------|
|-------------------|----------------------------|

---

10.2b

Please break down your total gross global Scope 2 emissions by facility

| Facility        | Scope 2 metric tonnes CO2e |
|-----------------|----------------------------|
| Thabazimbi Mine | 28103.83                   |
| Sishen Mine     | 473476.00                  |
| Kolmela Mine    | 473476.00                  |

---

10.2c

Please break down your total gross global Scope 2 emissions by activity

| Activity | Scope 2 metric tonnes CO2e |
|----------|----------------------------|
|----------|----------------------------|

---

Further Information

**Page: 11. Emissions Scope 2 Contractual**

---

11.1

**Do you consider that the grid average factors used to report Scope 2 emissions in Question 8.3 reflect the contractual arrangements you have with electricity suppliers?**

Yes

---

11.1a

You may report a total contractual Scope 2 figure in response to this question. Please provide your total global contractual Scope 2 GHG emissions figure in metric tonnes CO2e

---

11.1b

Explain the basis of the alternative figure (see guidance)

---

11.2

Has your organization retired any certificates, e.g. Renewable Energy Certificates, associated with zero or low carbon electricity within the reporting year or has this been done on your behalf?

11.2a

Please provide details including the number and type of certificates

| Type of certificate | Number of certificates | Comments |
|---------------------|------------------------|----------|
|---------------------|------------------------|----------|

Further Information

Page: 12. Energy

12.1

What percentage of your total operational spend in the reporting year was on energy?

More than 10% but less than or equal to 15%

12.2

Please state how much fuel, electricity, heat, steam, and cooling in MWh your organization has consumed during the reporting year

| Energy type | MWh    |
|-------------|--------|
| Fuel        | 126892 |
| Electricity | 507567 |
| Heat        |        |
| Steam       |        |
| Cooling     |        |

---

**12.3**

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

| Fuels          | MWh    |
|----------------|--------|
| Diesel/Gas oil | 125623 |
| Motor gasoline | 1269   |

---

**Further Information**

**Page: 13. Emissions Performance**

---

**13.1**

How do your absolute emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Increased

---

**13.1a**

Please complete the table

| Reason                         | Emissions value (percentage) | Direction of change | Comment  |
|--------------------------------|------------------------------|---------------------|--|
| Change in output               | 19                           | Increase            | This is the first year that greenhouse gas emissions from the new Kolomela Mine was reported. The production of iron ore has also increased from 2009 to 2010.   |
| Emissions reduction activities | 0.2                          | Decrease            | A project that was implemented at Sishen mine realised a saving in 2010. The replacement of a dust extraction system with a dust suppression system realised some savings during the last two months of 2010. A total saving of about 947MWh was achieved. |

---

**13.2**

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

| Intensity figure | Metric numerator   | Metric denominator | % change from previous year | Direction of change from previous year | Explanation   |
|------------------|--------------------|--------------------|-----------------------------|--|---|
| 0.0000216379     | metric tonnes CO2e | unit total revenue | 28                          | Decrease                               | Revenue increased from Rm 23 408 in 2009 to Rm 38 704 in 2010. This amounts to a 65% increase in revenue. Whereas the scope 1 &2 emissions only increased by 19%. |

13.3

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per full time equivalent (FTE) employee

| Intensity figure | Metric numerator   | Metric denominator | % change from previous year | Direction of change from previous year | Explanation                                    |
|------------------|--------------------|--------------------|-----------------------------|--|--|
| 130.8550936      | metric tonnes CO2e | FTE Employee       | 9                           | Increase                               | Kolomela mine was reported for the first time. |

13.4

Please provide an additional intensity (normalized) metric that is appropriate to your business operations

| Intensity figure | Metric numerator   | Metric denominator      | % change from previous year | Direction of change from previous year | Explanation                                    |
|------------------|--------------------|-------------------------|-----------------------------|--|--|
| 0.020277787      | metric tonnes CO2e | metric tonne of product | 14                          | Increase                               | Kolomela mine was reported for the first time. |

Further Information

Page: 14. Emissions Trading

14.1

**Do you participate in any emission trading schemes?**

No, and we do not currently anticipate doing so in the next two years

---

14.1a

Please complete the following table for each of the emission trading schemes in which you participate

| Scheme name | Period for which data is supplied | Allowances allocated | Allowances purchased | Verified emissions in metric tonnes CO2e | Details of ownership |
|-------------|-----------------------------------|----------------------|----------------------|--|----------------------|
|-------------|-----------------------------------|----------------------|----------------------|--|----------------------|

---

14.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

---

14.2

Has your company originated any project-based carbon credits or purchased any within the reporting period?

No

---

14.2a

Please complete the following table

| Credit origination or credit purchase | Project type | Project identification | Verified to which standard | Number of credits (metric tonnes of CO2e) | Number of credits (metric tonnes CO2e): Risk adjusted volume | Credits retired | Purpose e.g. compliance |
|---------------------------------------|--------------|------------------------|----------------------------|---|--|-----------------|-------------------------|
|---------------------------------------|--------------|------------------------|----------------------------|---|--|-----------------|-------------------------|

15.1

Please provide data on sources of Scope 3 emissions that are relevant to your organization

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
| Business travel              | 448                | <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from business travel. It involves multiplying activity data (i.e., person-kilometres travelled by mode of transport) by emission factors (typically default national emission factors by mode of transport). Kumba’s modes of transport include aircraft and automobile.</p> <p>Business Travel by Air: Kumba’s air travel consists of flights via commercial airline and via Kumba’s own jet (Dornier J328). The commercial flight distances and destinations were obtained from the service provider that arranges Kumba’s travel. The jet is used to transport employees, consultants and Kumba contractors between Johannesburg and Sishen. Another aircraft has been procured, and is used for transport between Johannesburg and Kolomela.</p> <p>Air travel emission factors used:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km’s travelled</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Long Haul Flights: 0.11 kg CO<sub>2</sub>/passenger km's travelled</p> <p>Short Haul Flights: 0.18 kg CO<sub>2</sub>/passenger km's travelled</p> <p>(Source: <a href="http://www.cleanairconservancy.org/calculator_air_info.php">http://www.cleanairconservancy.org/calculator_air_info.php</a>; World Resources Institute)</p> <p>Equation: Distance of flight x Emission factor</p> <p>Emissions:</p> <p>Commercial flights: 83.2 t CO<sub>2</sub>-e</p> <p>Jet: 26t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km's travelled</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Distance: 201304km</p> <p>Business Travel by Road: The kilometres for business travel by road were obtained from employee claimed business kilometres. Due to safety risks, long distance travel by road to the Northern Cape, where Sishen and Kolomale Mines are located, is prohibited. Kumba utilises scheduled air travel to those Mines.</p> <p>Equation: Claimed business kilometres (road) travelled by employees x fuel efficiency of the vehicle multiplied x fuel emission factor.</p> <p>Emissions: 339 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>    Claimed kilometres: 1492429</p> <p>    Fuel efficiency: 10 km/litre</p> <p>    Petrol emission factor: 2.27 kg CO<sub>2</sub>/litre (CO<sub>2</sub> emission factor 69,300 kg/TJ; Calorific value 44.3 MJ/kg (2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2)</p> <p>    Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from employee commuting:</p> <p>Total number of employees x average (conservative) distance from place of work (km) x 10 trips per week x 52 weeks per year x national average emission factor of private vehicle (kg CO<sub>2</sub>-e/passenger-km)</p> <p>Emissions: 80075 t CO<sub>2</sub>-e</p> <p>Input:</p> <ul style="list-style-type: none"> <li>Number of employees: 11800</li> <li>Percentage commuting to work with privately owned vehicles: 25%</li> <li>Average distance to work: 20km</li> <li>Fuel efficiency: 10 km/litre</li> <li><input type="checkbox"/> Fuel efficiency: 10 km/litre Petrol emission factor: 2.61 kg CO<sub>2</sub>/litre (source: Anglo American plc)</li> </ul> <hr/> <p>Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Equation used: <math>\text{Tonne CO}_2 = (\text{Mass of sold product}) \times (\text{Emission factor for production technique})</math>.</p> <hr/> <p>Fuel is one of the major “purchased goods” of Kumba.</p> <p>The emissions associated with the production of the purchased fuel - the direct supplier emissions are estimated by multiplying the amount of purchased fuel by an emission factor associated with the production of the fuel.</p> <p>Emissions: 52232 t CO<sub>2</sub>-e</p> <p>Input:</p> <p style="padding-left: 20px;">Diesel and petrol consumption: 100447 tonnes</p> <p>Emission factors associated with the production of the fuel:</p> <p style="padding-left: 40px;">Refining: 0.26 t CO<sub>2</sub>/tonne fuel;</p> <p style="padding-left: 40px;">Exploration and Production : 0.11 t CO<sub>2</sub>/tonne fuel (Royal Dutch Shell CDP 2009 Response)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>In accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative, the transportation and distribution of sold products in vehicles not owned or controlled by the reporting company were included.</p> <p>Equation: Mass of sold product x Distance travelled x Emission factor</p> <p>The transportation and distribution of Kumba's sold product include: the railway transport of iron ore from Sishen to Saldanha and the export of product via ship to mainly China, Japan, Korea and Western Europe.</p> <p>Railway emissions: 7249654 t CO<sub>2</sub>-e</p> <p>Shipping emissions: 1765736 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Railway transport</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Wagons per train: 342 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Tonnes per wagon: 100 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Distance for one trip: 861 km (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Emission factor: 0.123 kg CO<sub>2</sub>-e/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>) The Defra rail freight emission factor was adjusted for the South African electricity grid.</p> <p>Ship Freight</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Percentage exported to Western Europe: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to China: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Japan: 23% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Korea: 5% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to other countries: 2% (Kumba Iron Ore Sustainable Development Report, 2008) (not included in calculation)</p> <p>Emission factor: 0.004 kg CO<sub>2</sub>/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Distance to Western Europe:9464 km (www.portworld.com)</p> <p>Distance to Eastern Countries: 15000 km (www.portworld.com)</p>  |  |
| Employee commuting           | 8007               | <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from business travel. It involves multiplying activity data (i.e., person-kilometres travelled by mode of transport) by emission factors (typically default national emission factors by mode of transport). Kumba’s modes of transport include aircraft and automobile.</p> <p>Business Travel by Air: Kumba’s air travel consists of flights via commercial airline and via Kumba’s own jet (Dornier J328). The commercial flight distances and destinations were obtained from the service provider that arranges Kumba’s travel. The jet is used to transport employees, consultants and Kumba contractors between Johannesburg and Sishen. Another aircraft has been procured, and is used for transport between Johannesburg and Kolomela.</p> <p>Air travel emission factors used:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km’s travelled</p> <p>Long Haul Flights: 0.11 kg CO<sub>2</sub>/passenger km’s travelled</p> <p>Short Haul Flights: 0.18 kg CO<sub>2</sub>/passenger km’s travelled</p> <p>(Source: <a href="http://www.cleanairconservancy.org/calculator_air_info.php">http://www.cleanairconservancy.org/calculator_air_info.php</a>; World Resources Institute)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Equation: Distance of flight x Emission factor</p><br><p>Emissions:</p> <p>Commercial flights: 83.2 t CO<sub>2</sub>-e</p> <p>Jet: 26t CO<sub>2</sub>-e</p><br><p>Input:</p><br><p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km's travelled</p> <p>Distance: 201304km</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Business Travel by Road: The kilometres for business travel by road were obtained from employee claimed business kilometres. Due to safety risks, long distance travel by road to the Northern Cape, where Sishen and Kolomale Mines are located, is prohibited. Kumba utilises scheduled air travel to those Mines.</p> <p>Equation: Claimed business kilometres (road) travelled by employees x fuel efficiency of the vehicle multiplied x fuel emission factor.</p> <p>Emissions: 339 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>    Claimed kilometres: 1492429</p> <p>    Fuel efficiency: 10 km/litre</p> <p>    Petrol emission factor: 2.27 kg CO<sub>2</sub>/litre (CO<sub>2</sub> emission factor 69,300 kg/TJ; Calorific value 44.3 MJ/kg (2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2))</p> <p>    Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> <hr/> <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from employee commuting:</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Total number of employees x average (conservative) distance from place of work (km) x 10 trips per week x 52 weeks per year x national average emission factor of private vehicle (kg CO<sub>2</sub>-e/passenger-km)</p> <p>Emissions: 80075 t CO<sub>2</sub>-e</p> <p>Input:</p> <ul style="list-style-type: none"> <li>Number of employees: 11800</li> <li>Percentage commuting to work with privately owned vehicles: 25%</li> <li>Average distance to work: 20km</li> <li>Fuel efficiency: 10 km/litre</li> <li><input type="checkbox"/> Fuel efficiency: 10 km/litre Petrol emission factor: 2.61 kg CO<sub>2</sub>/litre (source: Anglo American plc)</li> </ul> <hr/> <p>Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> <hr/> <p>Equation used: Tonne CO<sub>2</sub> = (Mass of sold product) x (Emission factor for production technique).</p> <hr/> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Fuel is one of the major “purchased goods” of Kumba.</p> <p>The emissions associated with the production of the purchased fuel - the direct supplier emissions are estimated by multiplying the amount of purchased fuel by an emission factor associated with the production of the fuel.</p> <p>Emissions: 52232 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Diesel and petrol consumption: 100447 tonnes</p> <p>Emission factors associated with the production of the fuel:</p> <p>Refining: 0.26 t CO<sub>2</sub>/tonne fuel;</p> <p>Exploration and Production : 0.11 t CO<sub>2</sub>/tonne fuel (Royal Dutch Shell CDP 2009 Response)</p> <p>In accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative, the transportation and distribution of sold products in vehicles not owned or controlled by the reporting company were included.</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Equation: Mass of sold product x Distance travelled x Emission factor</p> <p>The transportation and distribution of Kumba's sold product include: the railway transport of iron ore from Sishen to Saldanha and the export of product via ship to mainly China, Japan, Korea and Western Europe.</p> <p>Railway emissions: 7249654 t CO<sub>2</sub>-e</p> <p>Shipping emissions: 1765736 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Railway transport</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Wagons per train: 342 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Tonnes per wagon: 100 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Distance for one trip: 861 km (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Emission factor: 0.123 kg CO<sub>2</sub>-e/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>) The Defra rail freight emission factor was adjusted for the South African electricity grid.</p> <p>Ship Freight</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Percentage exported to Western Europe: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to China: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Japan: 23% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Korea: 5% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to other countries: 2% (Kumba Iron Ore Sustainable Development Report, 2008) (not included in calculation)</p> <p>Emission factor: 0.004 kg CO<sub>2</sub>/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>)</p> <p>Distance to Western Europe: 9464 km (<a href="http://www.portworld.com">www.portworld.com</a>)</p> <p>Distance to Eastern Countries: 15000 km (<a href="http://www.portworld.com">www.portworld.com</a>)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
| Purchased goods and services | 52232              | <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from business travel. It involves multiplying activity data (i.e., person-kilometres travelled by mode of transport) by emission factors (typically default national emission factors by mode of transport). Kumba's modes of transport include aircraft and automobile.</p> <p>Business Travel by Air: Kumba's air travel consists of flights via commercial airline and via Kumba's own jet (Dornier J328). The commercial flight distances and destinations were obtained from the service provider that arranges Kumba's travel. The jet is used to transport employees, consultants and Kumba contractors between Johannesburg and Sishen. Another aircraft has been procured, and is used for transport between Johannesburg and Kolomela.</p> <p>Air travel emission factors used:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km's travelled</p> <p>Long Haul Flights: 0.11 kg CO<sub>2</sub>/passenger km's travelled</p> <p>Short Haul Flights: 0.18 kg CO<sub>2</sub>/passenger km's travelled</p> <p>(Source: <a href="http://www.cleanairconservancy.org/calculator_air_info.php">http://www.cleanairconservancy.org/calculator_air_info.php</a>; World Resources Institute)</p> <p>Equation: Distance of flight x Emission factor</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Emissions:</p> <p>Commercial flights: 83.2 t CO<sub>2</sub>-e</p> <p>Jet: 26t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km's travelled</p> <p>Distance: 201304km</p> <p>Business Travel by Road: The kilometres for business travel by road were obtained from employee claimed business kilometres. Due to safety risks, long distance travel by road to the Northern Cape, where Sishen and Kolomale Mines are located, is prohibited. Kumba utilises scheduled air travel to those Mines.</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Equation: Claimed business kilometres (road) travelled by employees x fuel efficiency of the vehicle multiplied x fuel emission factor.</p> <p>Emissions: 339 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>    Claimed kilometres: 1492429</p> <p>    Fuel efficiency: 10 km/litre</p> <p>    Petrol emission factor: 2.27 kg CO<sub>2</sub>/litre (CO<sub>2</sub> emission factor 69,300 kg/TJ; Calorific value 44.3 MJ/kg (2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2)</p> <p>    Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> <hr/> <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from employee commuting:</p> <p>Total number of employees x average (conservative) distance from place of work (km) x 10 trips per week x 52 weeks per year x national average emission factor of private vehicle (kg CO<sub>2</sub>-e/passenger-km)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Emissions: 80075 t CO<sub>2</sub>-e</p> <p>Input:</p> <ul style="list-style-type: none"> <li>Number of employees: 11800</li> <li>Percentage commuting to work with privately owned vehicles: 25%</li> <li>Average distance to work: 20km</li> <li>Fuel efficiency: 10 km/litre</li> <li><input type="checkbox"/> Fuel efficiency: 10 km/litre Petrol emission factor: 2.61 kg CO<sub>2</sub>/litre (source: Anglo American plc)</li> </ul> <hr/> <p>Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> <p>Equation used: Tonne CO<sub>2</sub> = (Mass of sold product) x (Emission factor for production technique).</p> <hr/> <p>Fuel is one of the major “purchased goods” of Kumba.</p> <hr/> <p>The emissions associated with the production of the purchased fuel - the direct supplier emissions are estimated by multiplying the amount of purchased fuel by an emission factor associated with</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>the production of the fuel.</p> <p>Emissions: 52232 t CO<sub>2</sub>-e</p> <p>Input:</p> <p style="padding-left: 20px;">Diesel and petrol consumption: 100447 tonnes</p> <p>Emission factors associated with the production of the fuel:</p> <p style="padding-left: 40px;">Refining: 0.26 t CO<sub>2</sub>/tonne fuel;</p> <p style="padding-left: 40px;">Exploration and Production : 0.11 t CO<sub>2</sub>/tonne fuel (Royal Dutch Shell CDP 2009 Response)</p> <hr/> <p>In accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative, the transportation and distribution of sold products in vehicles not owned or controlled by the reporting company were included.</p> <p>Equation: Mass of sold product x Distance travelled x Emission factor</p> <p>The transportation and distribution of Kumba's sold product include: the railway transport of iron ore from Sishen to Saldanha and the export of product via ship to mainly China, Japan, Korea and</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Western Europe.</p> <p>Railway emissions: 7249654 t CO<sub>2</sub>-e</p> <p>Shipping emissions: 1765736 t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Railway transport</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Wagons per train: 342 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Tonnes per wagon: 100 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Distance for one trip: 861 km (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Emission factor: 0.123 kg CO<sub>2</sub>-e/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>) The Defra rail freight emission factor was adjusted for the South African electricity grid.</p> |  |

| Sources of Scope 3 emissions    | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|---------------------------------|--------------------|--|--|
|                                 |                    | <p>Ship Freight</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Percentage exported to Western Europe: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to China: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Japan: 23% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Korea: 5% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to other countries: 2% (Kumba Iron Ore Sustainable Development Report, 2008) (not included in calculation)</p> <p>Emission factor: 0.004 kg CO<sub>2</sub>/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>)</p> <p>Distance to Western Europe: 9464 km (<a href="http://www.portworld.com">www.portworld.com</a>)</p> <p>Distance to Eastern Countries: 15000 km (<a href="http://www.portworld.com">www.portworld.com</a>)</p> |  |
| Transportation and distribution | 9015390            | <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from business travel. It involves multiplying activity data (i.e., person-kilometres travelled by mode of transport) by emission factors (typically default national emission factors by mode of transport). Kumba's modes of transport include aircraft and automobile.</p>   |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Business Travel by Air: Kumba’s air travel consists of flights via commercial airline and via Kumba’s own jet (Dornier J328). The commercial flight distances and destinations were obtained from the service provider that arranges Kumba’s travel. The jet is used to transport employees, consultants and Kumba contractors between Johannesburg and Sishen. Another aircraft has been procured, and is used for transport between Johannesburg and Kolomela.</p> <p>Air travel emission factors used:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km’s travelled</p> <p>Long Haul Flights: 0.11 kg CO<sub>2</sub>/passenger km’s travelled</p> <p>Short Haul Flights: 0.18 kg CO<sub>2</sub>/passenger km’s travelled</p> <p>(Source: <a href="http://www.cleanairconservancy.org/calculator_air_info.php">http://www.cleanairconservancy.org/calculator_air_info.php</a>; World Resources Institute)</p> <p>Equation: Distance of flight x Emission factor</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Emissions:</p> <p>Commercial flights: 83.2 t CO<sub>2</sub>-e</p> <p>Jet: 26t CO<sub>2</sub>-e</p> <p>Input:</p> <p>Domestic Flights: 0.13 kg CO<sub>2</sub>/passenger km's travelled</p> <p>Distance: 201304km</p> <p>Business Travel by Road: The kilometres for business travel by road were obtained from employee claimed business kilometres. Due to safety risks, long distance travel by road to the Northern Cape, where Sishen and Kolomale Mines are located, is prohibited. Kumba utilises scheduled air travel to those Mines.</p> <p>Equation: Claimed business kilometres (road) travelled by employees x fuel efficiency of the vehicle multiplied x fuel emission factor.</p> <p>Emissions: 339 t CO<sub>2</sub>-e</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Input:</p> <p>Claimed kilometres: 1492429</p> <p>Fuel efficiency: 10 km/litre</p> <p>Petrol emission factor: 2.27 kg CO<sub>2</sub>/litre (CO<sub>2</sub> emission factor 69,300 kg/TJ; Calorific value 44.3 MJ/kg (2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 2)</p> <p>Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> <p>This section was completed in accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative. The emissions-based screening assessment equation was used to calculating the emissions from employee commuting:</p> <p>Total number of employees x average (conservative) distance from place of work (km) x 10 trips per week x 52 weeks per year x national average emission factor of private vehicle (kg CO<sub>2</sub>-e/passenger-km)</p> <p>Emissions: 80075 t CO<sub>2</sub>-e</p> <p>Input:</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Number of employees: 11800</p> <p>Percentage commuting to work with privately owned vehicles: 25%</p> <p>Average distance to work: 20km</p> <p>Fuel efficiency: 10 km/litre</p> <p>□ Fuel efficiency: 10 km/litre Petrol emission factor: 2.61 kg CO<sub>2</sub>/litre (source: Anglo American plc)</p> <hr/> <p>Average density of petrol: 0.74 kg/litre (<a href="http://en.wikipedia.org/wiki/Gasoline#Density">http://en.wikipedia.org/wiki/Gasoline#Density</a>)</p> <p>Equation used: Tonne CO<sub>2</sub> = (Mass of sold product) x (□mission factor for production technique).</p> <hr/> <p>Fuel is one of the major “purchased goods” of Kumba.</p> <p>The emissions associated with the production of the purchased fuel - the direct supplier emissions are estimated by multiplying the amount of purchased fuel by an emission factor associated with the production of the fuel.</p> <p>Emissions: 52232 t CO<sub>2</sub>-e</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Input:</p> <p>Diesel and petrol consumption: 100447 tonnes</p> <p>Emission factors associated with the production of the fuel:</p> <p>Refining: 0.26 t CO<sub>2</sub>/tonne fuel;</p> <p>Exploration and Production : 0.11 t CO<sub>2</sub>/tonne fuel (Royal Dutch Shell CDP 2009 Response)</p> <hr/> <p>In accordance with the Scope 3 Accounting and Reporting Standard by The Greenhouse Gas Protocol Initiative, the transportation and distribution of sold products in vehicles not owned or controlled by the reporting company were included.</p> <p>Equation: Mass of sold product x Distance travelled x Emission factor</p> <p>The transportation and distribution of Kumba's sold product include: the railway transport of iron ore from Sishen to Saldanha and the export of product via ship to mainly China, Japan, Korea and Western Europe.</p> <p>Railway emissions: 7249654 t CO<sub>2</sub>-e</p> <p>Shipping emissions: 1765736 t CO<sub>2</sub>-e</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology  | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|--|--|
|                              |                    | <p>Input:</p> <p>Railway transport</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Wagons per train: 342 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Tonnes per wagon: 100 (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Distance for one trip: 861 km (<a href="http://www.kumba.co.za/ops_logistics.php">http://www.kumba.co.za/ops_logistics.php</a>)</p> <p>Emission factor: 0.123 kg CO<sub>2</sub>-e/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>) The Defra rail freight emission factor was adjusted for the South African electricity grid.</p> <p>Ship Freight</p> <p>Mass of product exported: 36.1 Mt (Kumba Iron Ore Full Annual Review, 2010)</p> <p>Percentage exported to Western Europe: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to China: 35% (Kumba Iron Ore Sustainable Development Report, 2008)</p> |  |

| Sources of Scope 3 emissions | metric tonnes CO2e | Methodology   | If you cannot provide a figure for emissions, please describe them |
|------------------------------|--------------------|---|--|
|                              |                    | <p>Percentage exported to Japan: 23% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to Korea: 5% (Kumba Iron Ore Sustainable Development Report, 2008)</p> <p>Percentage exported to other countries: 2% (Kumba Iron Ore Sustainable Development Report, 2008) (not included in calculation)</p> <p>Emission factor: 0.004 kg CO<sub>2</sub>/tonne.km (Defra 2009 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors, October 2009. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a>)</p> <p>Distance to Western Europe:9464 km (<a href="http://www.portworld.com">www.portworld.com</a>)</p> <p>Distance to Eastern Countries: 15000 km (<a href="http://www.portworld.com">www.portworld.com</a>)</p> |  |
| Use of sold products         | 19053303.2         | The ore produced by Kumba are sent to the following ore processing technologies in the respective proportions: Direct Reduction (1%) Sinter Plants (4%) Blast Furnace (59%) It was assuming that 2 tonnes of iron ore are required for every one tonne of final product. Emission factors associated with the ore processing technologies: Direct Reduction : 0.7 t CO <sub>2</sub> /tonne produced Sinter Plants :0.7 t CO <sub>2</sub> /tonne produced Blast Furnace : 1.35 t CO <sub>2</sub> /tonne produced   |  |

15.2

Please indicate the verification/assurance status that applies to your Scope 3 emissions

Not verified or assured

15.2a

Please indicate the proportion of your Scope 3 emissions that are verified/assured

15.2b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

| Type of verification or assurance | Relevant standard | Relevant statement attached |
|-----------------------------------|-------------------|-----------------------------|
|-----------------------------------|-------------------|-----------------------------|

15.3

How do your absolute Scope 3 emissions for the reporting year compare to the previous year?

No change

15.3a

Please complete the table

| Reason                         | Emissions value (percentage) | Direction of Change | Comment |
|--------------------------------|------------------------------|---------------------|---------|
| Emissions reduction activities | 0                            |                     |         |

Further Information

Module: Sign Off

Page: Sign Off

**Please enter the name of the individual that has signed off (approved) the response and their job title**

Alex Mgzah  
Executive Head of Safety and Sustainable Development

Carbon Disclosure Project