SA’s EXPERIENCE IN THE COMPILATION OF MINERAL ACCOUNTS

• Background
• Physical accounts
• Resource rent
• Monetary accounts
• Problems experienced
• Challenges
Background

- Physical & monetary accounts (1980-2001)
  - Gold (39 mine operations)
  - Platinum (12 mine operations)
  - Coal (62 mine operations)
- Mining industry: R67 301 million to the total GDP (R983 448) in 2001 (7%)
- Discussion document – July 2002
- Official statistics – September 2004
## Gold: Physical account for South Africa

<table>
<thead>
<tr>
<th>Year</th>
<th>Opening stock (tons)</th>
<th>Prod (extrac) (tons)</th>
<th>Disco (tons)</th>
<th>Other volume change (tons)</th>
<th>Closing stock (sub-soil assets) (tons)</th>
<th>Volume sold (tons)</th>
<th>Net change invent (tons)</th>
<th>Closing stock (inc inv) (tons)</th>
<th>Years to depltl</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>36 328,3</td>
<td>451,3</td>
<td>N/A</td>
<td>-</td>
<td>35 877,0</td>
<td>456,8</td>
<td>-5,5</td>
<td>35 871,5</td>
<td>79</td>
</tr>
<tr>
<td>2000</td>
<td>35 877,0</td>
<td>430,9</td>
<td>N/A</td>
<td>-</td>
<td>35 446,1</td>
<td>407,6</td>
<td>23,3</td>
<td>35 469,4</td>
<td>82</td>
</tr>
<tr>
<td>2001</td>
<td>35 446,1</td>
<td>394,8</td>
<td>N/A</td>
<td>-</td>
<td>35 051,2</td>
<td>388,0</td>
<td>6,8</td>
<td>35 058,0</td>
<td>89</td>
</tr>
</tbody>
</table>

Measure of stock = Ecn proven reserves

- **35 877,0 – 430,9**
- **35 446,1 + 23,3**
- **35 058,0 / 394,8**
Gold: Estimated number of years to depletion for South Africa
Resource Rent

• measure of the scarcity value of extractive resources as their finite stocks are reduced with extraction

• 1st step in developing monetary accounts

• value of output (@ producer prices) minus production costs

Nominal profit -

Average LT nominal interest rate

Minus prevailing interest inflation rate

Equal Rate of return to capital

Multiply fixed capital stock in mining

Equal estimates of nominal profits

• average costs were used to calculate resource rent
Gold: Resource rent and other calculations for SA at current prices (R million)

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output (sales)</td>
<td>24 990</td>
<td>25 272</td>
<td>29 011</td>
</tr>
<tr>
<td>Intermediate consumption</td>
<td>8 387</td>
<td>8 627</td>
<td>8 878</td>
</tr>
<tr>
<td>Consumption of employees (total)</td>
<td>9 100</td>
<td>9 809</td>
<td>10 904</td>
</tr>
<tr>
<td>Consumption of employees (male)</td>
<td>8 902</td>
<td>9 586</td>
<td>10 674</td>
</tr>
<tr>
<td>Consumption of employees (female)</td>
<td>198</td>
<td>223</td>
<td>229</td>
</tr>
<tr>
<td>Consumption of capital</td>
<td>4 370</td>
<td>4 734</td>
<td>5 113</td>
</tr>
<tr>
<td>Opportunity cost of capital (SDR 3%)</td>
<td>1 917</td>
<td>2 002</td>
<td>2 087</td>
</tr>
<tr>
<td>Opportunity cost of capital (SDR 5%)</td>
<td>3 195</td>
<td>3 337</td>
<td>3 478</td>
</tr>
<tr>
<td>Resource Rent (SDR 3%)</td>
<td>1 216</td>
<td>100</td>
<td>2 029</td>
</tr>
<tr>
<td>Resource Rent (SDR 5%)</td>
<td>-102</td>
<td>-1 198</td>
<td>638</td>
</tr>
<tr>
<td>Unit rent (R/kg) (SDR 3%)</td>
<td>2 397</td>
<td>318</td>
<td>5 286</td>
</tr>
<tr>
<td>Unit rent (R/kg) (SDR 5%)</td>
<td>-227</td>
<td>-2 779</td>
<td>8 810</td>
</tr>
</tbody>
</table>
Gold: Output and intermediate consumption: 1980–2001 (R million)
Monetary accounts

Full environmental accounting used to calculating monetary accounts for SA.

This represents an attempt to accommodate all entries of the more comprehensive physical resource account in the 1993 SNA with monetary values assigned.
## Gold: Monetary account for SA current prices (R million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Opening stock</th>
<th>Depletion</th>
<th>Reevaluation</th>
<th>Closing stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>28 090</td>
<td>3 441</td>
<td>5 080</td>
<td>36 611</td>
</tr>
<tr>
<td>2000</td>
<td>36 611</td>
<td>261</td>
<td>-33 833</td>
<td>3 038</td>
</tr>
<tr>
<td>2001</td>
<td>3 038</td>
<td>4 389</td>
<td>55 335</td>
<td>62 762</td>
</tr>
</tbody>
</table>

- **Unit rent * volume of depletion**
- **Value of opening stock**
  - Less value of the depleted stock
  - Plus value of new discoveries, additions and other volume changes
  - Plus any revaluation due to time passing
  - Plus nominal holding gain
- **Valued at the change in the present value**
- **Valued by discounting for one year less**
- **Calculated as a residual**
Gold: Value of closing stock for SA @ current prices (R mil)
Problems experienced

• Data sources

• Presenting figures in nominal values (Monetary)
  • change measuring unit (R) to more stable currency
  • use a GDP deflator
  • present values as a ratio to GDP

• Social Discount Rate (SDR)

• Output = sales (data constraints NE SNA)
Challenges

- International guidelines
- Staff with relevant skills/knowledge/experience
- Educating users
- Data
  - Extensive/comprehensive – required
  - Regular – trends
  - Published figures
- Feeding into policy issues
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