Subsoil Asset Accounts

Results of a questionnaire
and points for further discussion

Prepared for
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LG Rome 2003: *Subgroup on subsoil asset accounting*

**Purpose:**

a) Carry out a survey on country practices in the compilation of mineral resources accounting

b) Prepare guidelines on the compilation of subsoil asset accounts

c) Consider the discussions of the Canberra II Group on the measurement of Non-Financial Assets as they relate to subsoil assets
Questionnaire / survey of country practises

• Send out by mail April 2003 to 29 countries and organisations

• Responses from nine countries with subsoil asset accounting:
  
  - Canada
  - Austria
  - South Africa
  - New Zealand
  - Denmark
  - Netherlands
  - Philippines
  - Norway
  - United Kingdom

• and from Germany and Sweden: No accounting
Questions

• *Type of accounting*  
  (which assets, classification, units of measurement, accounting period)

• *Basis for the accounts*  
  (guidelines, data sources)

• *Challenges*

• *Dissemination*

• *Future plans*
<table>
<thead>
<tr>
<th></th>
<th>Oil and natural gas</th>
<th>Coal</th>
<th>Metallic minerals</th>
<th>Non-metallic minerals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Canada</strong></td>
<td></td>
<td>x</td>
<td>x</td>
<td>gold, copper, nickel, iron, uranium, crude bitumen, zinc, silver molybdenum and lead</td>
</tr>
<tr>
<td><strong>Denmark</strong></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>New Zealand</strong></td>
<td></td>
<td>x</td>
<td>x</td>
<td>developing gold, silver and iron.</td>
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<tr>
<td><strong>Norway</strong></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Philippines</strong></td>
<td></td>
<td>x</td>
<td>gold, copper, chromate, nickel, magnesium and iron</td>
<td>limestone and sand and gravel</td>
</tr>
<tr>
<td><strong>South Africa</strong></td>
<td></td>
<td>x</td>
<td></td>
<td>gold and platinum</td>
</tr>
<tr>
<td><strong>The Netherlands</strong></td>
<td></td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource classification</td>
<td>Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand, The Philippines</td>
<td>Proven, Probable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>Proven, Probable, Possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Proven, Probable, Possible and undiscovered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>Total recoverable (discovered resources and undiscovered)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Ongoing and approved, planned recovery, possible recovery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>Developed reserves (Established – recoverable – proven/probable)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

National level
but: Canada, New Zealand and Philippines also Regional level accounting
All nine countries have time series (covering 10-25 years)

### Years covered by the accounts

<table>
<thead>
<tr>
<th>Country</th>
<th>Years covered</th>
<th>Time lag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>1975-2000</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>1977-2001</td>
<td>3 years</td>
</tr>
<tr>
<td>Denmark</td>
<td>1991-2002</td>
<td>2 years</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1992-2001</td>
<td>3 year</td>
</tr>
<tr>
<td>Norway</td>
<td>1984-2002</td>
<td>1 year</td>
</tr>
<tr>
<td>UK</td>
<td>1981-</td>
<td>10 month</td>
</tr>
<tr>
<td>South Africa</td>
<td>1980-2001</td>
<td></td>
</tr>
</tbody>
</table>
Guidelines in use

- Non European countries: SEEA and others

- European countries: Eurostat-guidelines (for oil and gas) except the Netherlands for valuation
Usefulness of SEEA

All nine countries find that SEEA is clear and useful!

*But* some areas are poorly covered:

- Renewable energy stock measurement
- Distribution of resource rent between owners
- Actual country examples
Methods used for the valuation

NPV is the preferred method with 8% per cent return to capital, 4% discount rate and constant extraction!

The Netherlands: Rent appropriated by government

Canada and the Philippines: Other methods in use as well
Varying details in monetary asset accounts

Basic identity:

- Opening stock
- + Changes
- = Closing stock

New Zealand: split of changes

- Additions
- Other changes

South Africa: split of deductions

- Volumes sold
- Changes in inventories

UK and Norway: split of revaluation

- Time passing
- Changes in rent

Denmark: split of changes

- Extraction
- New findings etc.
- Revaluations

Responses
Treatment of uncertainty

Philippines, New Zealand, UK: Verbal explanation in publications

Canada: Relative measure of reliability

Denmark and Norway: Sensitivity analysis (varying discount rate and rate of return on capital)
Dissemination of accounts

- Internet (CA, DK, PH, NZ, UK)
- Hard Copies (DK, CA, PH, ZA)

Indicators

Natural resource wealth
Physical stocks
Total resource base
Production/reserve ratio

Several countries mention that they intend to derive indicators
Use of the accounts

Canada: National balance sheet, index of well-being

New Zealand: Analysis of carbon tax policy, Sustainability assessment model

Norway and Philippines: Growing interest from ministries

The Norwegian experience in the 80’ties!
Other issues of interest

Decommisioning costs
no experience, but broad interest

"Stocks" of renewable energy
(wind, hydro, biomass, etc.)
Countries’ future plans

Minor plans for future expansions
But: more regular accounts

Canada: Diamonds, offshore crude oil and gas

Norway: Incorporation of monetary accounts into National Accounts

New Zealand: Carbon accounts and renewable energy

Philippines: Hydro, oil, gas and other minerals
Some challenges mentioned by respondents

General:
• Lack of data
• Data quality
• Confidentiality
• Lack of expertise and experience

Valuation:
• depletion profile
• rate of return to capital
• discount rate
• Treatment of capital in rent calculation
• Division of cost between oil and gas
• Government’s share of revenues from oil and gas
Points for *discussion* and *prioritising*

- Need for harmonization and international comparisons?

  **Classifications**

  **NPV parameters**
  - Rate of return, discounting, extraction profiles
  - Consensus rates?

- Guidelines for regional subsoil accounts?

- Would it be useful to try to harmonize the level of detail in the accounting?
  - Same accounting items for changes in stocks?
• Decommissioning cost?

• Supplement SEEA with guidelines?
  - renewable energy stock measures
  - distribution of resource rent between owners,
  - actual country examples

• Common standards for reliability measures and sensitivity analysis?

• How can experiences best be shared?

• Fixed prices calculations of stock values?

• Are indicators for subsoil assets an issue for the London Group?
Next Step for the London Group / sub-group?

• Continue country survey?

• Prepare guidelines?
  build on Eurostat guidelines

• Other ideas?

• Ambitions and resources?

• New volunteers for the subgroup?