THE INDONESIAN MINERAL RESOURCES DEVELOPMENT AND ITS ENVIRONMENTAL MANAGEMENT TO SUPPORT SUSTAINABLE NATIONAL DEVELOPMENT

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- INTRODUCTION
- ENERGY RESOURCES DEVELOPMENT
- MINERAL RESOURCES DEVELOPMENT
- ENVIRONMENTAL POLICY IN MINING SECTOR
- CONCLUSION
INTRODUCTION

- **Geological prospectivity of Indonesian Mineral Resources**
  - E & M resources occurrence = F (Geology)
  - Uneven distribution of mineral resources ⇒ Rich, partially rich, & poor regions
  - Indonesia may be classified into mineral rich region

- **Significance of mineral resources**
  - Various everyday life tools

- **Mineral resources development and its environmental impact**

- **Mutual benefit : economic interest and environmental protection**
Oil resources: 60 Hydrocarbon basins
- 38 Explored ⇒ 15 producing
- 22 not explored
- Recent discovery in old fields

Oil is back bone Indonesian economy ⇒ Its role must be reduced

Gas: 2nd best energy source & substantial resource

Oil and Gas: resources, production and investment ⇒ Back bone of petrochemical industry

Coal & geothermal: other prospective energy source

Use of renewable energy: need to be intensified
Oil and Gas Resources Development

BBO

TSCF

Oil
Gas
Total


0 40 80 120

-300 -600 -900

Oil Gas Total

-900

-600

-300

0
Oil and Gas Production

- Oil & condensate (BPD)
- Gas (’000 MSCF)


- 1996: Oil & condensate 3000 BPD, Gas 1000’000 MSCF
- 1997: Oil & condensate 3000 BPD, Gas 1000’000 MSCF
- 1998: Oil & condensate 3000 BPD, Gas 1000’000 MSCF
- 1999: Oil & condensate 3000 BPD, Gas 1000’000 MSCF
- 2000: Oil & condensate 3000 BPD, Gas 1000’000 MSCF
Investment figure (US$ millions)

Exploration  Development  Production  Administration
MINERAL RESOURCES DEVELOPMENT

- Production and revenue
- Employment and contribution to public interest
- Effect of economic crisis
  - Severe depreciation of Indonesian currency against US$
  - Mining industry deals with export, and spending cost in local currency
  - Economic crisis does not seriously affect national mining industry
  - Economic crisis was followed by political crisis → deterioration of law and order → unrest situation, illegal mining operation
  - Uncomfortable situation in mining industry development
  - Exploration slow down: no new mineral discovery & no new mining development
  - Discouraging regulations: Decentralization, New Forestry Law
Attractive mining investment

- Mineral resource is another potential economic contributor
- Tin, nickel, copper, gold, bauxite and coal are produced from world class deposits
- Most Indonesian territory has not been explored well ⇒ More discoveries may occur
- General Mining Law No 11 of 1967 has increased mineral sector investment
- Type of mineral title:
  - Contract of Work (CoW) : mineral for foreign investor
  - Coal Contract of Work (CCoW) : domestic and foreign investors
  - Mining authorization (MA) : mineral and coal for domestic investor
  - Letter of Regional Mining Permit (LRMP) : industrial mineral and rocks for local investors
- In 90’s Indonesia is attractive countries in mineral investment (rank 4th)
- Until 2000 : 235 CoW, 119 CCoW and 597 MA were issued, and US$ 12 billions total investment
- CoW and CCoW are key drivers of mining sector development
Production of Tin, Nickel, Copper, Gold and Coal

- **Tin**: Indonesia's production has remained consistent from 1996 to 2000, maintaining around 40% of world production.
- **Nickel**: Indonesia's production has increased from 1996 to 2000, peaking at 10% of world production in 2000.
- **Copper**: Indonesia's production has also increased, reaching close to 30% in 2000.
- **Gold**: Indonesia's production has grown steadily from 1996 to 2000, reaching roughly 250 t.
- **Coal**: Indonesia's production has steadily increased, with production reaching nearly 75 Mt by 2000.
GOVERNMENT REVENUE FROM TAX AND NON-TAX

US$ millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Tax</th>
<th>Non-Tax</th>
<th>Total revenue</th>
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<tbody>
<tr>
<td>1996</td>
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SALES PERFORMANCE

US$ millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic Sales</th>
<th>Export</th>
<th>Net Sales</th>
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<tr>
<td>1996</td>
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AGGREGATE PROFIT AND LOST

US$ millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Net sales</th>
<th>Total expenses</th>
<th>Net profit</th>
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DIRECT EMPLOYMENT

Employees

<table>
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<tr>
<th>Year</th>
<th>Indonesian</th>
<th>Expatriate</th>
<th>Total direct employees</th>
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<tr>
<td>1996</td>
<td>32000</td>
<td>8000</td>
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**Government policy to develop mining sector**

- **Short term**: Supporting economic recovery program
- **Long term**: Improving mineral sector management \( \Rightarrow \) sustainable economic development

**Important agendas:**

- Preparing new mining law, to accommodate: decentralization, new investment policy, regional & community developments, environmental protection, etc.
- Efficiency improvement of state owned mining enterprise
- Harmonization between related agencies: Mining, Forestry & Environmental
- Stop illegal mining
- Problem solving related to regional autonomy
- Optimizing ore process to obtain high added value
- Expanding R & D to utilize mineral material to intensify domestic industry
- Establish accurate mineral information system to attract investment
ENVIRONMENTAL POLICY IN ENERGY AND MINERAL RESOURCES

- **Law No. 23 / 1997**: Management of environment
  ⇒ **Implementation**: Government regulation + Ministerial decision

- **Energy Sector**:
  - Gas: Environmentally friendly
  - Diversification: Renewable energy
  - Conservation
  - Application of clean coal technology

- **Mineral Sector**:
  - New mining law: economic interest + environmental protection
  - Developing mining environmental policy
    - Regulations, guidelines, standard operating procedure
    - Tight cooperation between related agencies
  - Principles of sustainable mining
Current Issues

- Post mining land use ⇒ Mine closure plan
- Regional & community developments ⇒ poverty alleviation
- Illegal miners: seriously damage environment
  ⇒ Steps are being taken to stop it
Various EMR: Competitive advantage ⇒ Should be managed properly ⇒ Sustainable economic development

Investment in EMR

Consistent in environmental protection

Reducing oil role: Energy + Commodity diversification policies

Improve management
  - Mining operation ⇒ good mining practices
  - Post mining land use
  - Regional & community developments ⇒ poverty alleviation