Copper Mining Industry in Zambia

Environmental Challenges

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Zambia’s major economic activity is mining, and as at 2005, mining contributed about 65% of export earnings.

- Major minerals are Copper and Cobalt
- Copper production stands at 465,000 mt, and is expected to reach about 700,000 mt by 2010.
- 2 big copper mines (new) to being developed, and several small ones.
Main Environmental Concerns

- **Air Pollution:**
  - Gasses from mineral processing $\text{CO}_2$, $\text{SO}_2$ etc
Main Environmental Concerns

- **Air Pollution:**
  - Fugitive dust from the mine dumps
Main Environmental Concerns

Mine Waste

- Overburden
  - Near-surface soils and rock from open pit stripping operations.
  - Approximately 32 overburden dumps in Zambia’s mining industry.
  - Contain approximately 1,899 Million Tonnes of overburden.
  - Cover an area of approximately 206,465ha.

- Waste rock
  - Generated in underground shaft mining.
  - Approximately 21 waste rock dumps.
  - Approximately 77 Million Tonnes of waste rock.
  - Cover an area of approximately 388 ha.
Main Environmental Concerns

- **Tailings**
  - Waste materials produced from concentration of copper-to-copper concentrates with copper content of less than 1%.
  - Approximately 45 dumps/dams
  - Contain approximately 791 Million Tonnes of tailings
  - Cover an area of approximately 9,125ha.

- **Slag**
  - Waste material produced from smelting of metal concentrates.
  - Generally delivered for disposal in molten or granulated state.
  - There are 9 slag dumps
  - Contain approximately 40 Million Tonnes of slag
  - Cover an area of approximately 279 ha.
Main Environmental Concerns

- Land Degradation
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- Water Pollution
  - Most effluent from the Mines end up in the Kafue River
  - A lot of waste oil and effluent discharged into the environment
  - This river is source to about 40% of drinking water for the cities
  - Tailings and other dumps result into surface water and ground water contamination.
Mines have resulted in environmental problems like:
- Increased population
- Problems of sanitation
- Access to basic services
- Increased deforestation
- Etc
Environmental Protection and Pollution Control Act (EPPCA), 1990

Environmental Council of Zambia established under this act.

- Principal law on environment premised on the polluter pays principle. The Act is supported by 7 regulations:
  - Waste Management Regulations, 1993
  - Water Pollution Regulations, 1993
  - Air Pollution Control Regulations, 1996
  - Pesticides and Toxic Substances, 1994
  - Environmental Impact Assessment Regulations, 1997
  - Hazardous Waste Management Regulations, 2001
  - Ozone Depleting Substances Regulations, 2001
Mitigation Measures

- Mines have been privatised so as to improve their operational efficiency, as well as re-investment.
- New mine owners were compelled to develop Environmental Management Plans which had to be approved by ECZ.
- For new mines, investors have to develop EIAs which have to be approved by ECZ.
- Government set up an Environmental Management Facility (EMF) to take up ownership of all environmental liabilities that were not taken by new mine owners (to cost about US$ 200m).
Mitigation Measures - cont

- Mines now have to get licence to discharge into the environment.
- All mines have to address environmental issues as per EIA/EMPs
- All EMPs are audited from time to time.
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