Uranium Resources

Per Jander
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COP/MOP 2

United Nations
Framework
Convention
on
Climate Change

Nairobi
Kenya

6-17 November
2006

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Uranium and Geology

- Found in 14 different types of deposits
- 0.1% grade enough for mining today
- Average concentration in Earth's crust 2.8 ppm
- Granite and shales
- Trace amounts in sea water
- Uranium is by no means scarce

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Uranium: A Global Resource

Uranium as a Commodity

- Short history – only 60 years
- Uranium market cycle similar to other metals
  - Exploration, Discovery and Production
- Easy to remove from host minerals
- No more radiation exposure than other mining activities

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Known Uranium Resources

Have Increased by 66% in 10 Years

- From 2.1 Mt in 1995 to 3.5 Mt in 2005
- Addition of new countries
- Addition of new discoveries
- Technical advances improve yield of known resources
- Despite little need for development 1985-2005

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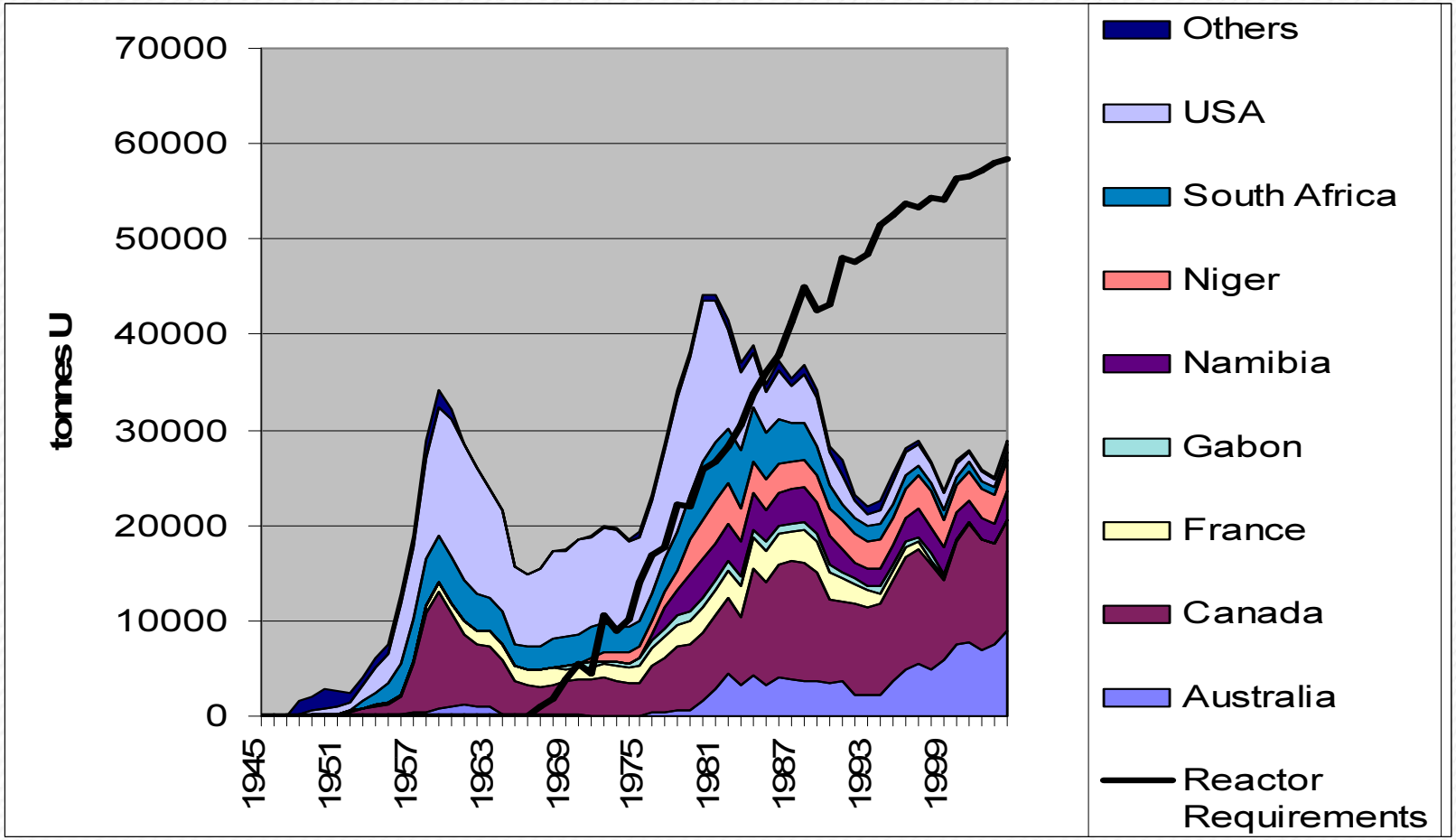
Uranium Production



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Secondary Supplies

- 10% of the electricity supply in the United States come from dismantled Russian warheads
- During the period 1994-2013 20,000 nuclear warheads will be turned into fuel

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Resource Sustainability

"It's All About the Economics"

- Economics discourage companies to discover more reserves than society needs
- Should not expect to see more than a few decades of reserves for any commodity
- 25-40 years is standard for most metals
- Current known uranium resources is enough for 80 years

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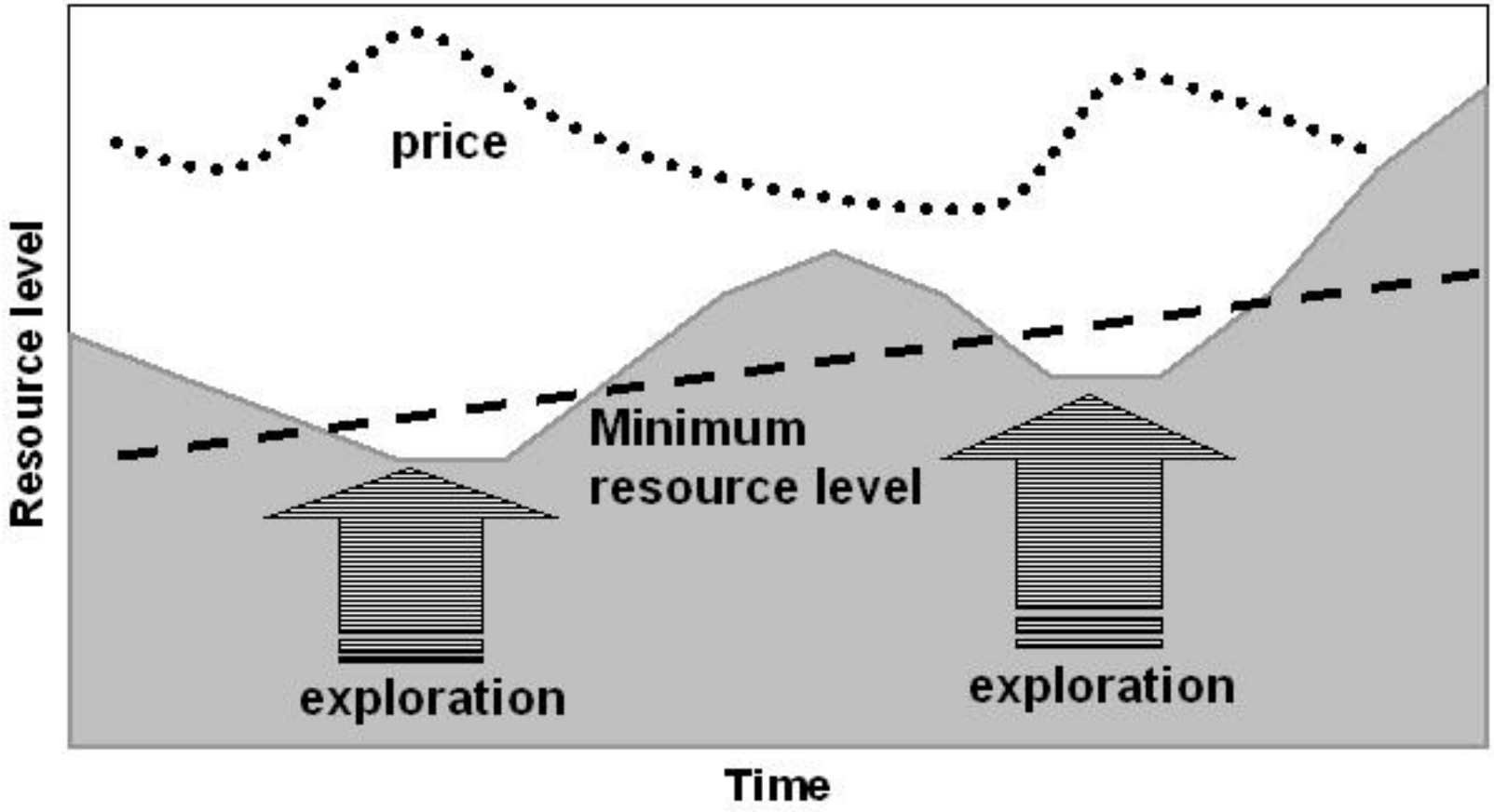
Resource Dynamics



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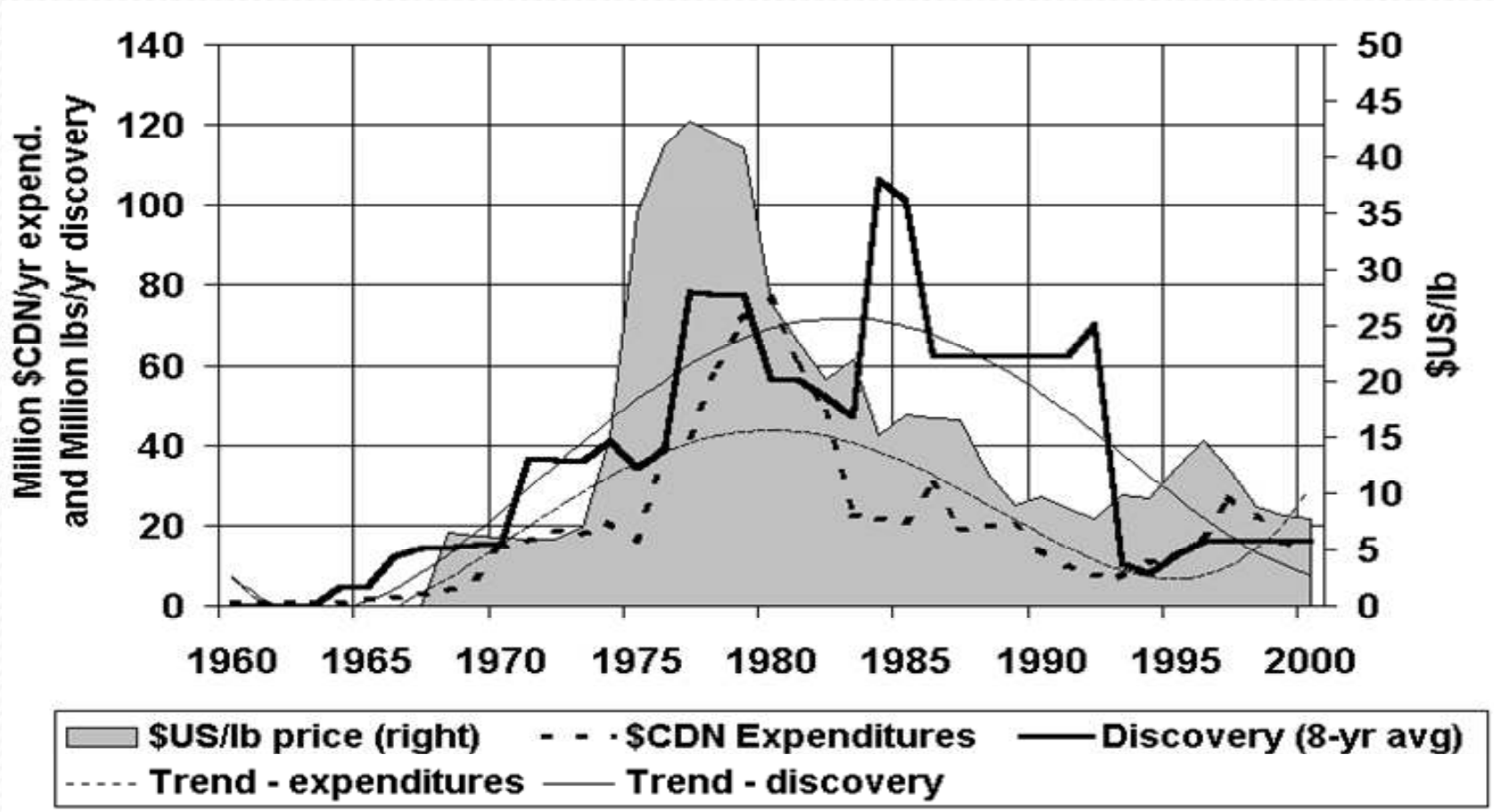
Resource Dynamics: Uranium



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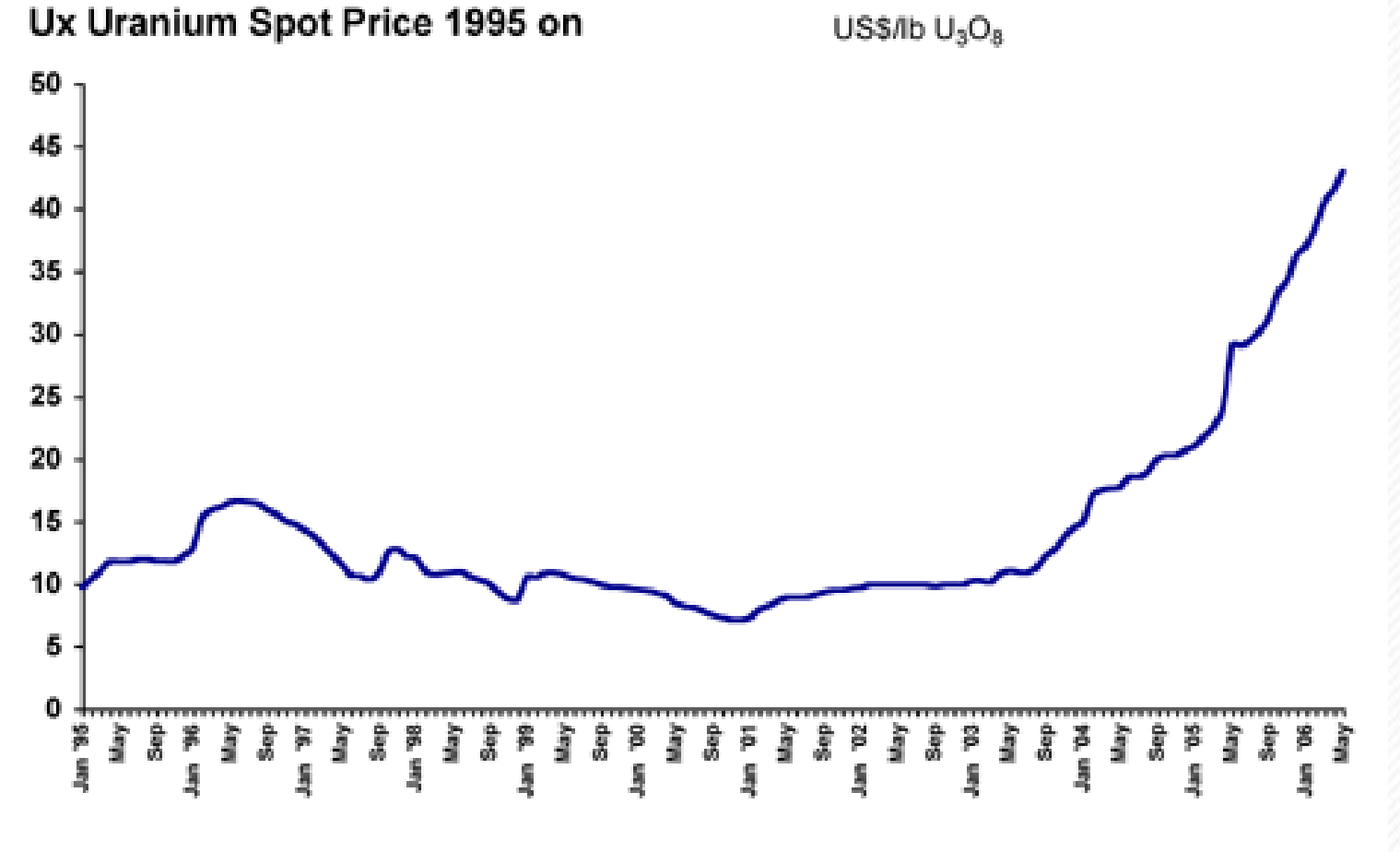
Resource Dynamics in Practice



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Resource Dynamics in Practice

Mining and exploration companies

2004: 25

2005: 60

2006: 300

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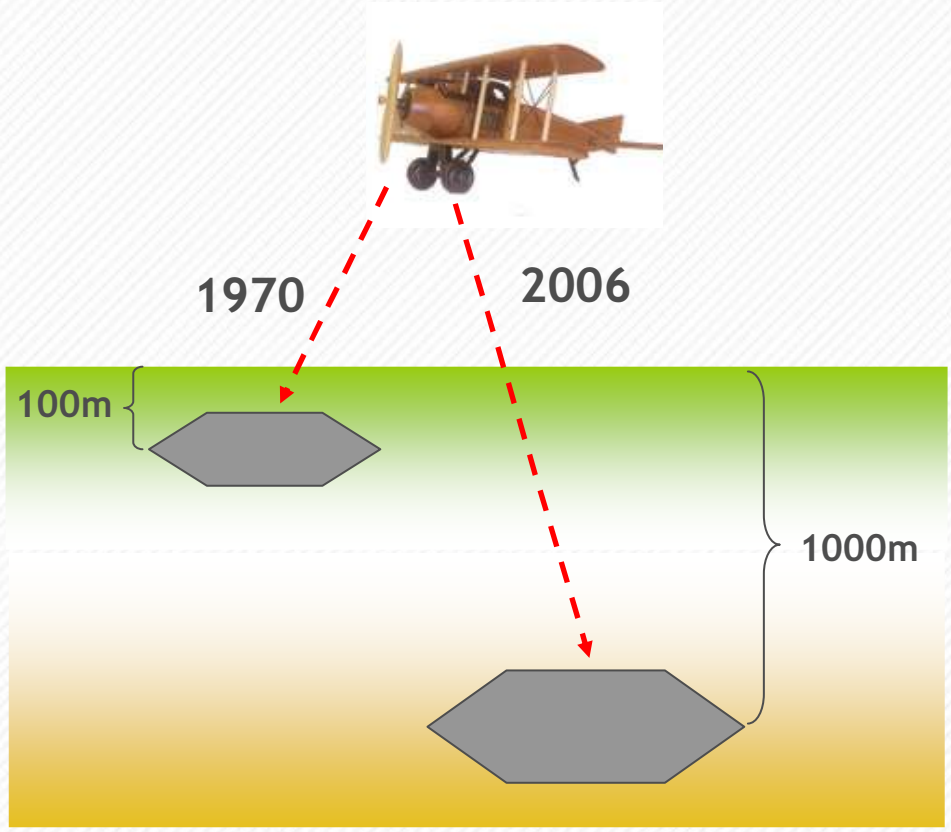
Technological Improvements

Mineral Discovery Surveys



- In 1970, airborne electromagnetical surveys were effective to a depth of 100 meters
- Today they are good down to 1 km

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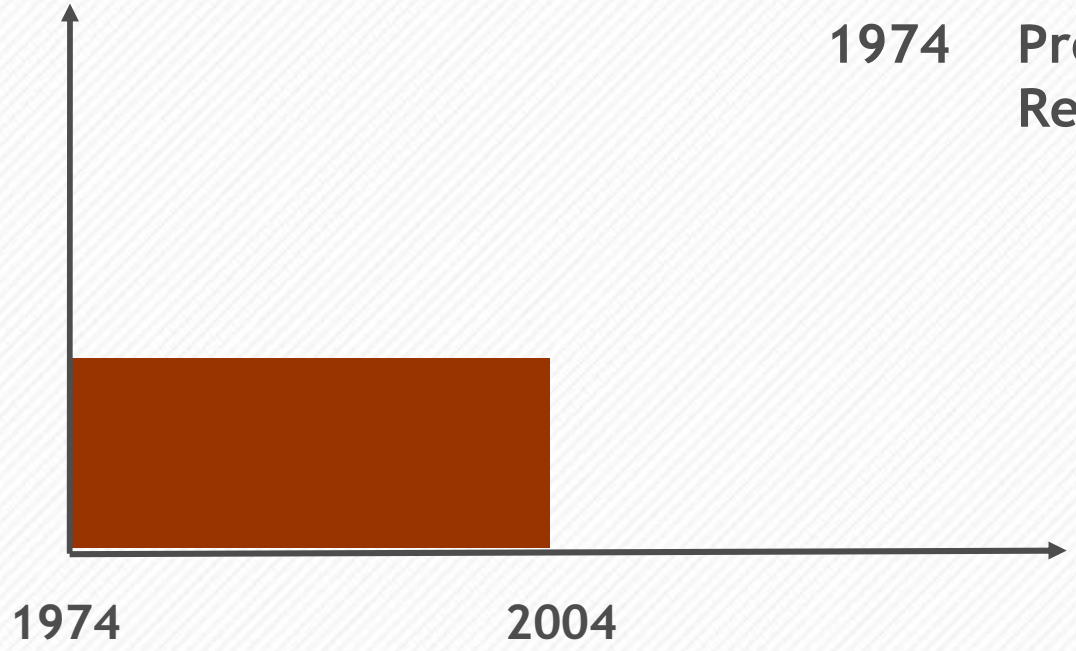
Replenishment: An Example

Known Resources of Copper



1974	Production	6.4 Mt/yr
	Reserves	30 years

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Replenishment: An Example

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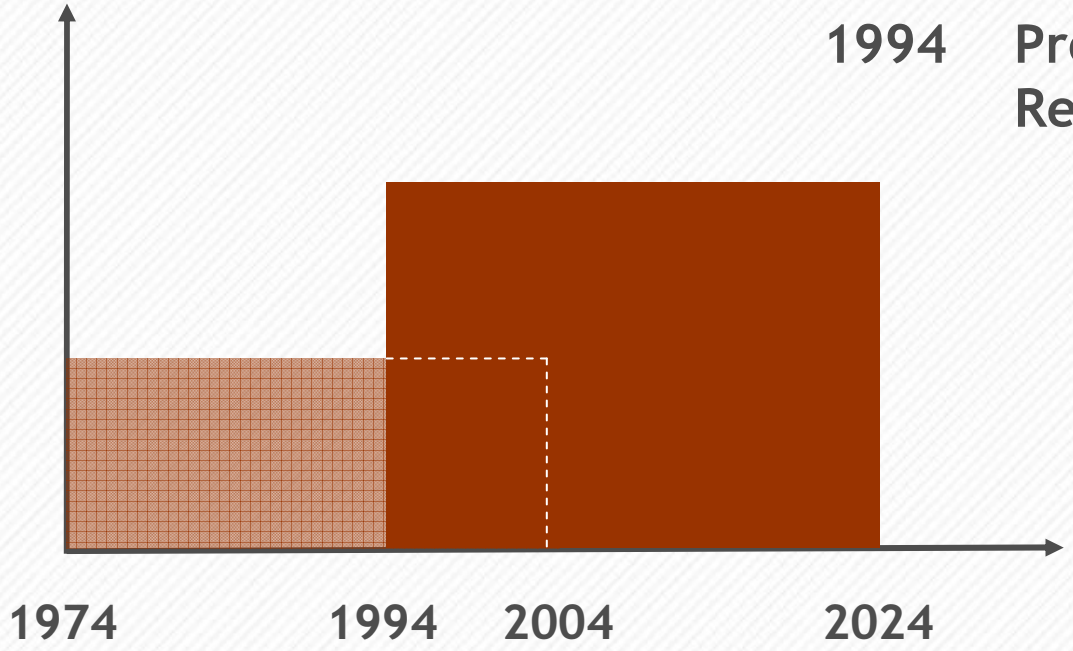

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People have been looking for copper for more than 5000 years

We have been looking for uranium for 60 years

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Conclusions

- There is plenty of uranium
- Secondary supplies have held back development
- High uranium prices
- Surge in exploration interest
- Improved exploration and mining methods
  - Efficiency
  - Environmental impacts
- Uranium mining is a young industry
  - Entering second cycle

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