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Plateaus & Peaks In Precious Metals Mine Production
 Bruce Alway
 Autumn Precious Metals Seminar,
 15 November 2002

GFMS

Outline

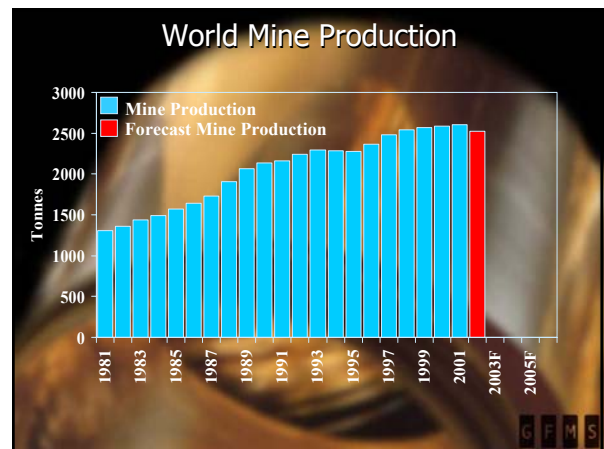
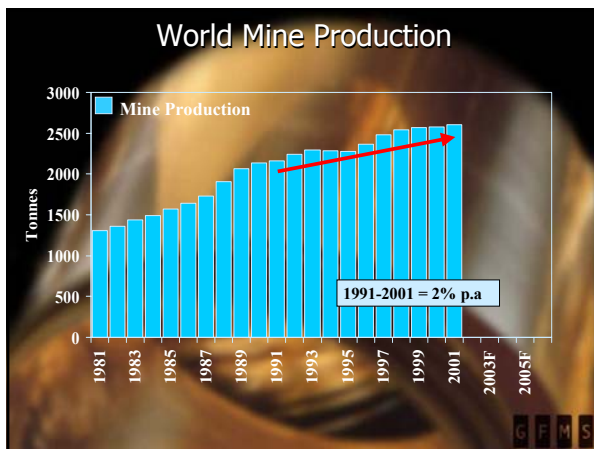
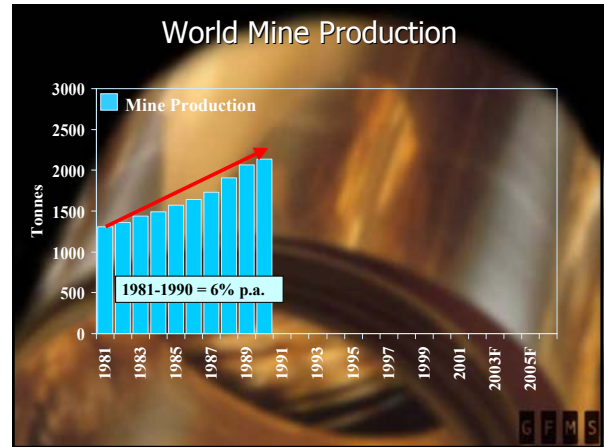
- Gold production forecast
- Silver production forecast
- Platinum, palladium and rhodium production forecast

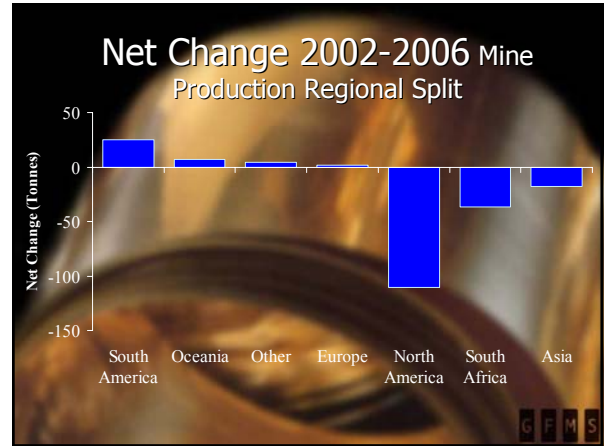
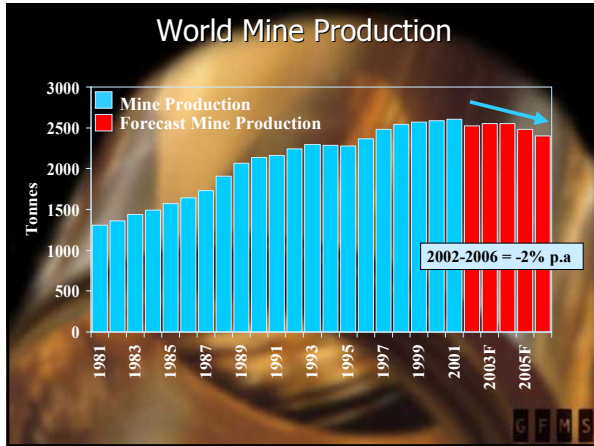
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Gold

- Exploration boom following price spike in late 70s
- Cost control
- Emerging gold producing countries

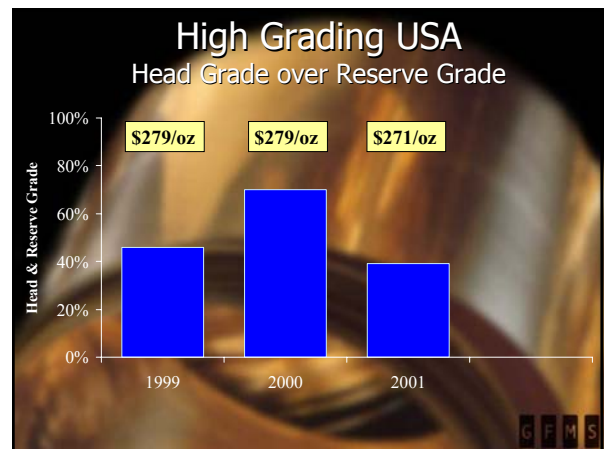
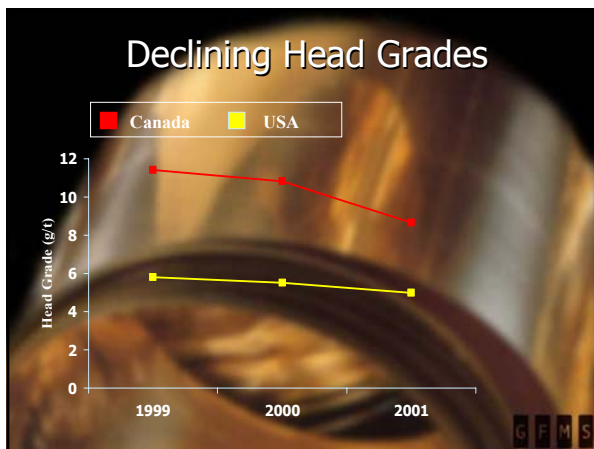
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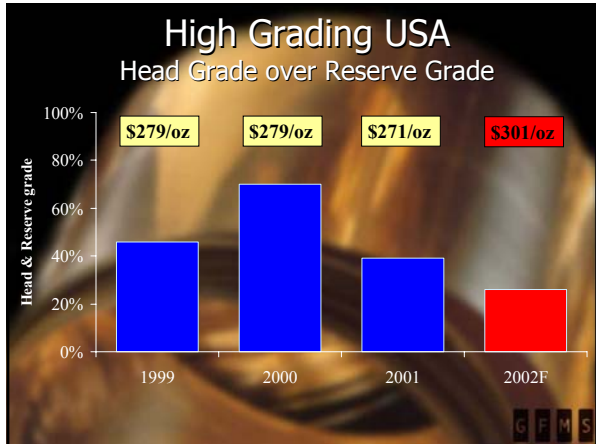




North American Mine Closures 2000-2005

	2000	2001	2002	2003-2005
	Daisy	Homestake	Kettle River	Beartrack
	Dee	Hycroft	McCoy / Cove	Briggs
	Rosebud	Brewery Creek	Ruby Hill	Castle Mountain
		Edwards		Golden Sunlight
		Francoeur		McLaughlin
		Glimmer		Rand Mine
		Keystone		Bald Mountain
		Mt Polley		Barneys Canyon
		Nugget Pond		Denton Rawhide
		Bissett		
Lost Capacity	6	31	14	35
Total (tonnes)				85





Gold Outlook summary

- Gold mine production to fall in 2002
- Expect a modest recovery in 2003
- Longer term view is for fall in output
- Mine closures and declining head grades in North America key factors in measured decline

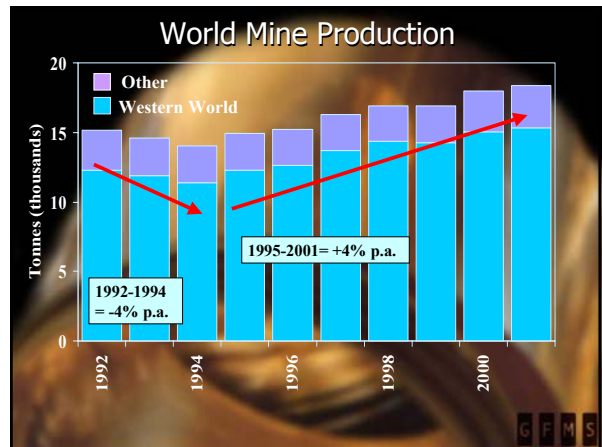
Decline could be lower than anticipated

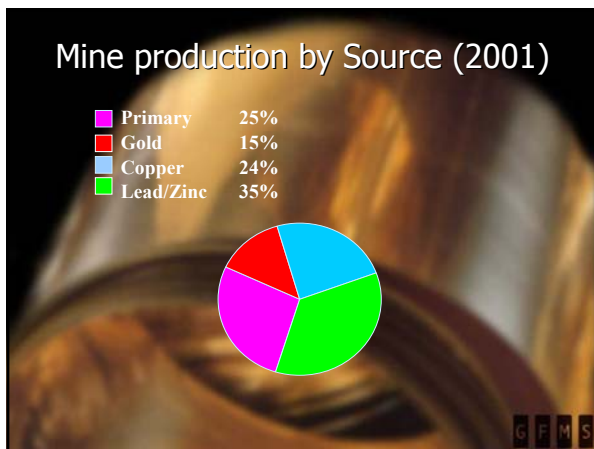
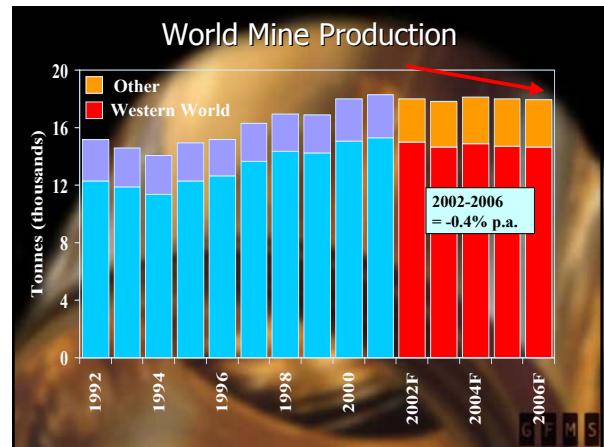
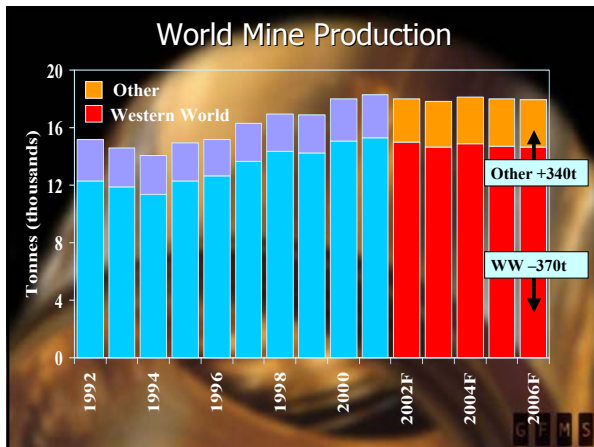
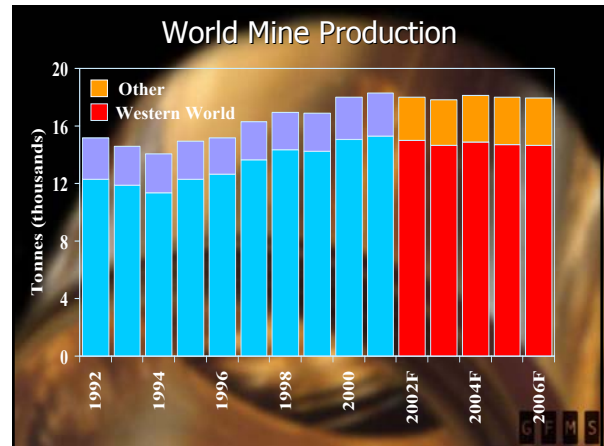
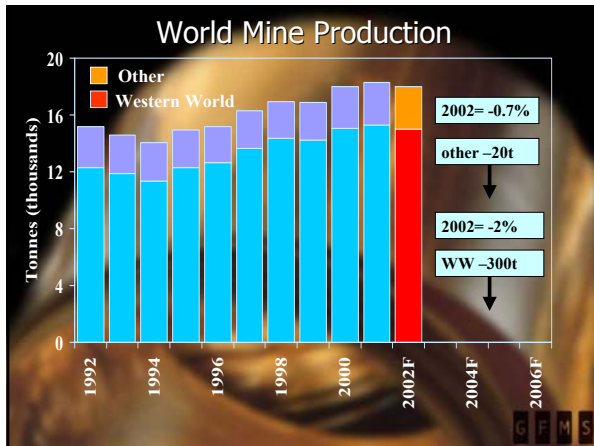
- Brownfield expansions
- Conservative timetable for pipeline supply
- Extension of mine life

Outline

- Gold production forecast
- Silver production forecast
- Platinum and Palladium production forecast

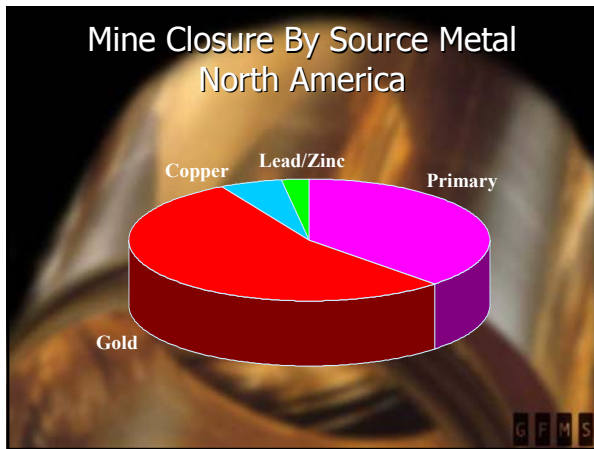
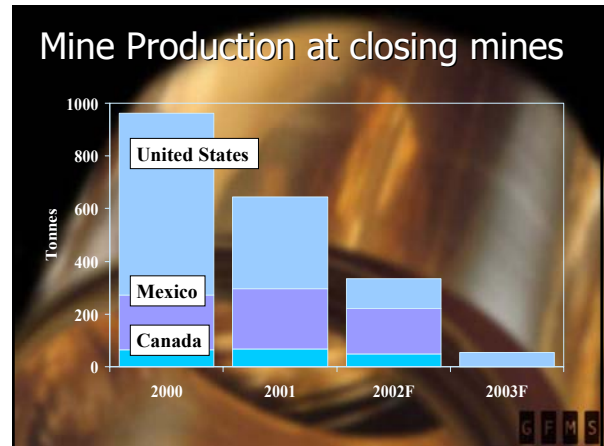
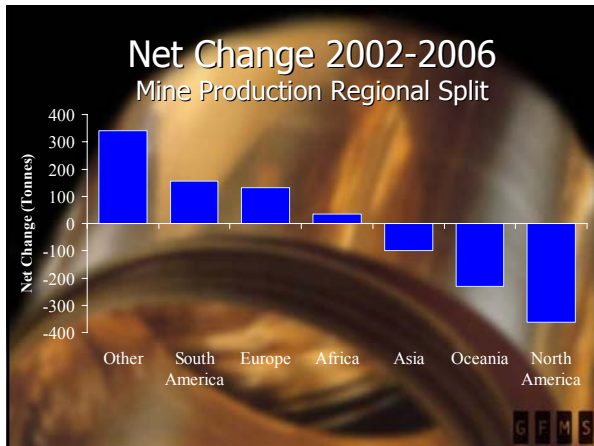
Silver





Example of by-product silver mines (production capacity)

Au-Eskay Creek	Canada	460 t/y
Au-La Coipa	Chile	250 t/y
Cu-Antamina	Peru	190 t/y
Cu-Bingham	USA	130 t/y
Zn-Naica	Mexico	150 t/y
Zn-Mount Isa	Australia	350 t/y
Zn-Brunswick	Canada	200 t/y



Two Important Undeveloped Projects

<p>Au - Pascua Lama Argentina-Chile Announced timetable – start-up 2008 Capacity - 1,000 t/y</p>
<p>Zn – San Cristobal Bolivia Announced timetable – start-up 2/3 years after final development decision Capacity – 800 t/y</p>
<p>Combined production capacity – 1,800 t/y</p>

Silver Outlook Summary

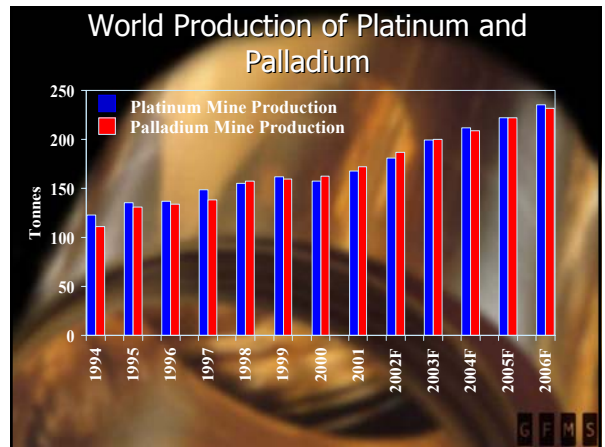
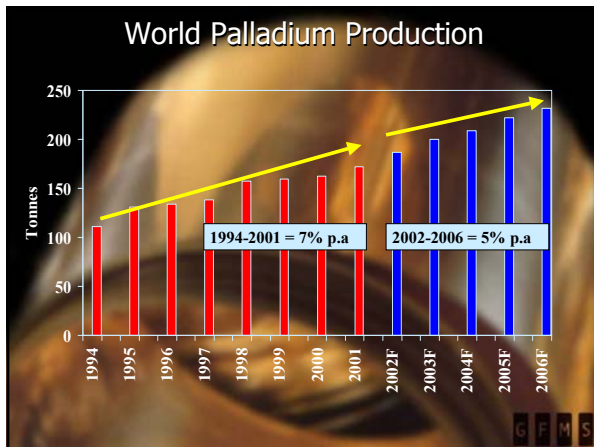
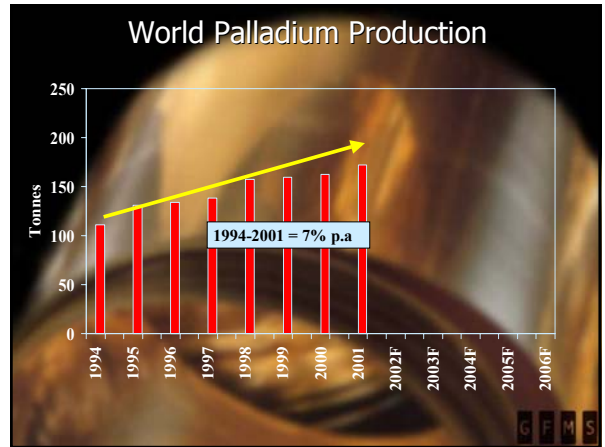
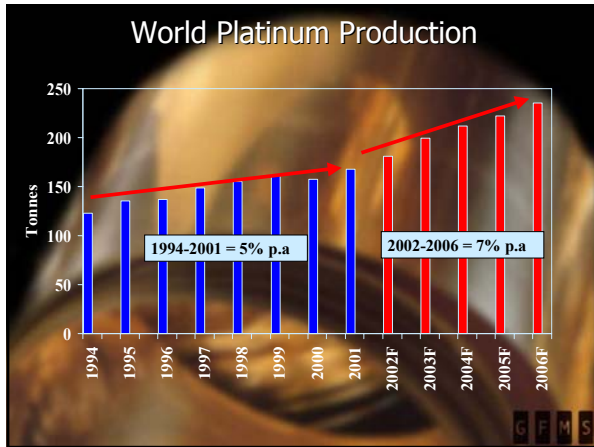
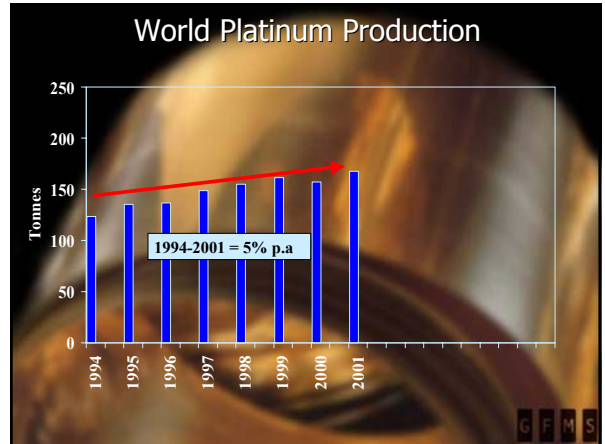
- Decline forecast in 2002
- Further fall anticipated in 2003
- Key factor in drop is lower output in North America
- Ore depletion and mine closures
- Longer term - decline in Western World output offset by growth in Russia.

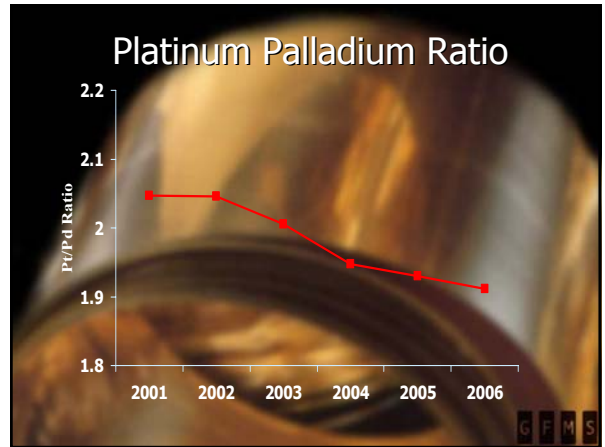
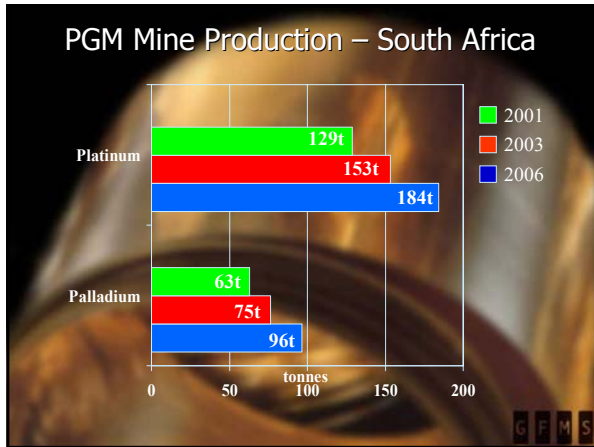
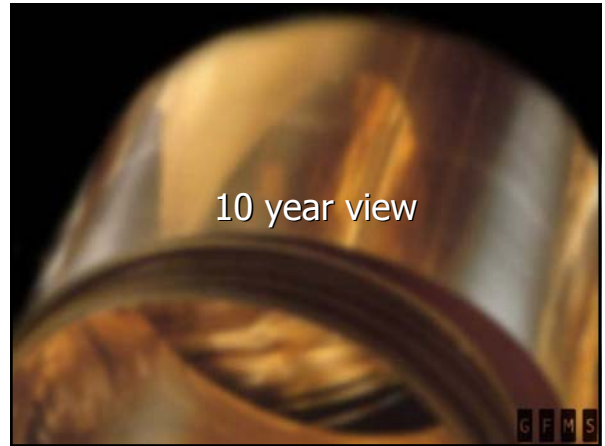
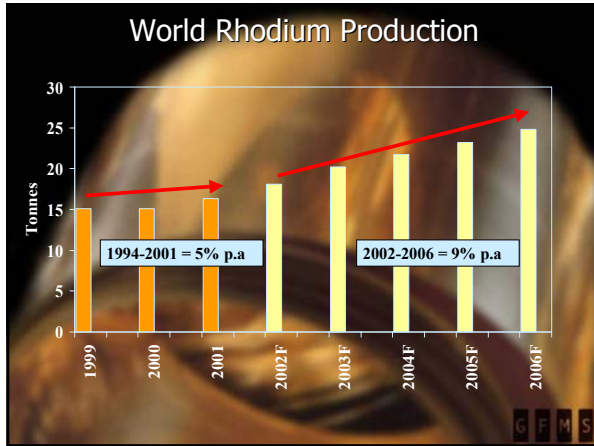
Output could be lower than anticipated

- Lower output from pipeline supply
- Further mine closures – base metal producers in:
 - Peru
 - Mexico
 - Europe

Outline

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Production Shortfall?

- Aggressive growth plans in South Africa
- Impacts of the Mineral Bill
- Shortfall from stated goals of 16 tonnes of platinum

