UNCTAD Expert Meeting on

FDI IN NATURAL RESOURCES

20-22 November 2006

The minerals and fuels boom of the mid-2000's

by

Professor Marian Radetzki
Professor of Economics

The minerals and fuels boom of the mid-2000's

By
Marian Radetzki
Professor of Economics

Commodity prices in current boom

	2002	2006(Q1-Q3)	Change, %
Uranium, $/lb	9.8	43.1	340
Copper, $/ton	1560	6620	324
Nickel, $/ton	6783	21185	212
Nat gas, Eur, $/mmBTU	2.6	7.7	196
Rubber, cts/lb	35	101	188
Oil Brent, $/bl	25.0	67.3	169
Iron ore, $/Fe unit	29	77	166
Lead , $/ton	452	1178	160
Coffee, robusta, cts/lb	31	68	119
Coal (Austr Xp), $/ton	27.1	53.5	97
Rice, $/ton	192	303	58
Oranges, $/ton	565	793	40

Growth Patterns During Three Booms. Percent

	1949	1950	1951	1952
North America and Western Europe				
GDP	2,6	9,2	7,2	2,1
Industrial production	-0,3	8,1	9,3	3,2
	1972	**1973**	**1974**	**1975**
OECD				
GDP	5,4	6,0	0,8	-0,2
Industrial production	6,5	8,1	-1,5	-4,3
	2002	**2003**	**2004**	**2005**
World				
GDP	3,1	4,1	5,3	4,8
Industrial production	0,4	3,4	6,3	4,0
OECD				
GDP	1,6	2,0	3,3	2,7
Industrial production	0,1	1,1	4,1	1,9
Developing Asia				
GDP	7,0	8,4	8,8	8,6
Industrial production	6,3	6,8	10,2	9,1

Notes: OECD represented 68% of world GDP in 1973. OECD represented 52% of world GDP in 2005, while Developing Asia represented 27%, both in PPP terms.

Sources: *UNCTAD Handbook*, 1976; IMF, *World Economic Outlook,* April and Sept 2006*; Monthly Statistical Bulletin of the United Nations;* OECD *Historical Statistics*; OECD *Main Economic Indicators.*

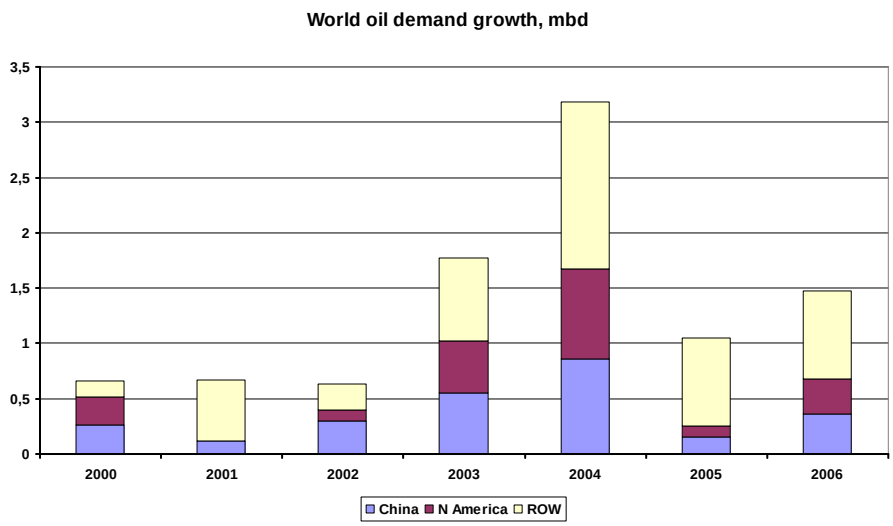
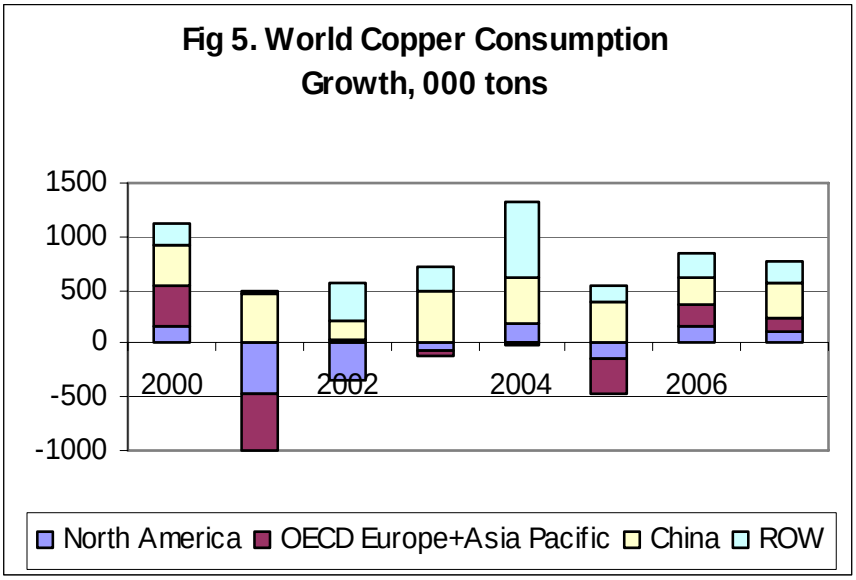


Fig 5. World Copper Consumption Growth, 000 tons



Proved reserves and reserve/production ratios for four minerals

	Oil	Iron ore	Nickel	Copper
Proved reserves, million tons				
1995	**138**	**151000**	**47**	**310**
2005	**164**	**160000**	**62**	**470**
Reserves/production ratio, years				
1995	**41.3**	**151**	**47**	**31**
2005	**40.6**	**105**	**41**	**32**

Source: BP (annual). USGS (annual).

Operating cash costs for three metals

	1985		2002	
	Typical[1]	**Least efficient[2]**	**Typical[1]**	**Least efficient[2]**
$/ton (nominal)				
Aluminum	1000	1200	1000	1200
Copper	1000	1400	1000	1600
Nickel	3400	5300	3700	6100
$/ton (deflated by UN's MUV index[3], 2002=100)				
Aluminum	1380	1655	1000	1200
Copper	1380	1931	1000	1600
Nickel	4690	7310	3700	6100

(1) 50th percentile of the industry cost curve; (2) 90th percentile of the industry cost curve; (3) Unit value index of manufactures exports. Sources: IMF (2006); UNCTAD, *Monthly Commodity Price Bulletin*, several issues.

The cost of new liquids supply

Top 100 oil and gas projects under development in 2004

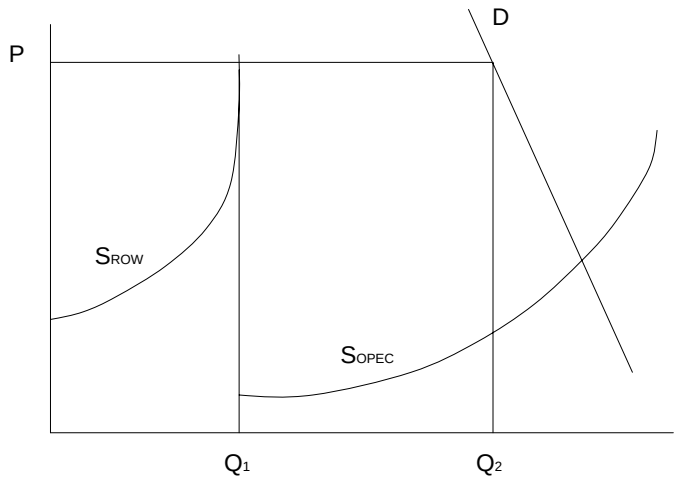
Total investment expenditure $ 440 bn. 60% oil, 40% gas. 73% of output outside OPEC.
Total exploitable reserves 142 bn boe. Enough for production of 10 mbd over 38 years.
Peak production 2012 at 19.3 mbd. Longevity 32 years.

Average costs, $/bl:	**Exploration and investment**	**3.1**
	Production	**3.2**
	Income tax, prod tax, royalty	**7.7**
	Total cost and tax	**14.0**

Projects assessed to yield 12.5% return over 32 years, at Brent oil price of $20.

Source: Goldman Sachs, *Global Energy, 100 Projects to Change the World*, Jan 2005.

OPEC and Oil Price Formation



World oil. Long run production growth

	1980	2005	Change, %
ME OPEC	18.7	20.8	11.2
Other OPEC	8.3	9.0	8.4
Total OPEC	27.0	29.8	10.4
OECD	16.3	20.3	24.5
FSU(1)	12.1	11.6	-4.1
ROW	6.4	22.4	250.0
Total World	61.8	84.1	36.1
OPEC share, %	43.7	35.4	-19.0

(1) Russia in 2005: 9.5.