The Nickel Industry – Long term drivers of nickel supply & demand

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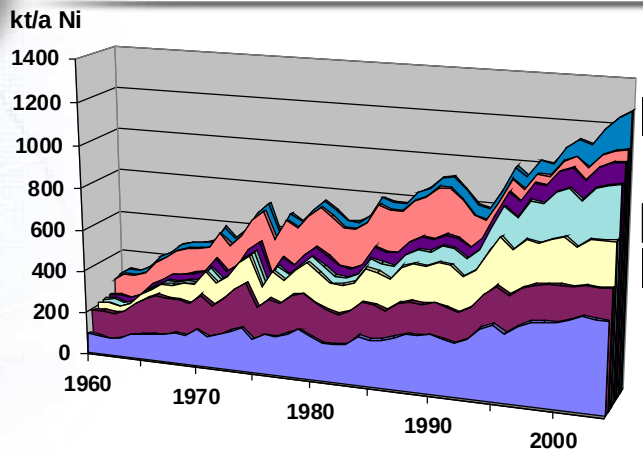
International Nickel Study Group,
Lisbon, October 2, 2006

Presentation contents

1. Historical nickel demand
2. Profitability drivers
3. Supply additions are in “waves”
4. Ore types & process routes
5. Critical success factors
6. Recent project examples
7. Conclusions

Primary nickel use 1960-2005



China 16%

FSU + E. Europe 3%
Others 6%

Other Asia 17%

Japan 14%

USA 11%

W. Europe 33%
of global use

Global use grew from 300 kt in 1960 to 1.25 Mt in 2005 an average rate of 3.3% pa

Growth averaged >6% pa to mid 70s, then 1% pa mid 70s to mid 80s, then resurged in W. World, but followed by collapse of FSU use in 1990s

130 kt growth in China between 2000 and 2005. Asia now accounts for 47% of global primary nickel use

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Primary nickel use growth rates

%pa growth	1960s	1970s	1980s	1990s	2000-05
W. Europe	6.3%	1.6%	3.0%	3.6%	1.0%
USA	4.3%	-0.4%	-0.9%	1.4%	-1.9%
Japan	18.6%	2.3%	3.0%	1.9%	-1.1%
Other Asia	11.6%	17.5%	15.2%	12.5%	1.6%
Other W. World	14.0%	3.3%	-0.3%	8.1%	-4.3%
Western World	7.5%	1.5%	2.5%	4.3%	-0.3%
FSU + E.Europe	5.4%	4.6%	1.9%	-16.0%	3.6%
PR China	5.4%	0.6%	6.9%	6.1%	25.2%
Total World	7.0%	2.1%	2.5%	2.1%	2.1%

1950 –1973 "golden period" of low inflation post war growth and 6% pa nickel growth

First energy crisis Nov 1973 marked start of high inflation, low economic growth and negative substitution e.g. loss of NiCr plated steel bumpers, thin wall castings, near net shape, better steel making replacing alloying elements

Stainless slab growth moved from Japan to Korea and Taiwan and European mills invested for export

Loss of 200 kt/a primary nickel use in FSU in early 1990s

Since 2000 China has accounted for all net growth in global primary nickel use
Consumption growth constrained by supply/high price?

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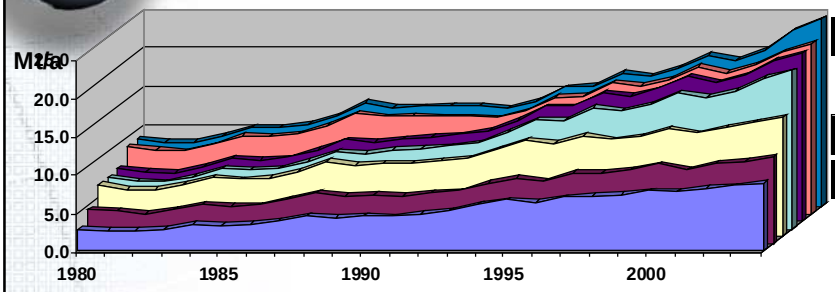
Stainless slab production 1980-2005



China 14%
FSU + E. Europe 1%
Other 5%
Other Asia 22%
Japan 16%
USA 9%
W. Europe 33%
of global total

% pa growth	1980s	1990s	2000-05
W. Europe	4.8%	5.7%	1.0%
USA	1.8%	2.7%	-1.5%
Japan	3.5%	1.3%	2.3%
Other Asia	27.2%	18.1%	8.2%
Other W. World	6.1%	8.0%	1.5%
Western World	4.5%	5.7%	2.6%
FSU + E.Europe	1.2%	-17.0%	-3.6%
PR China	11.5%	6.9%	47.0%
Total World	4.0%	4.2%	5.0%

Asia now accounts for 52% of global slab production and rising

Note greater divergence of stainless and primary nickel growth since 2000

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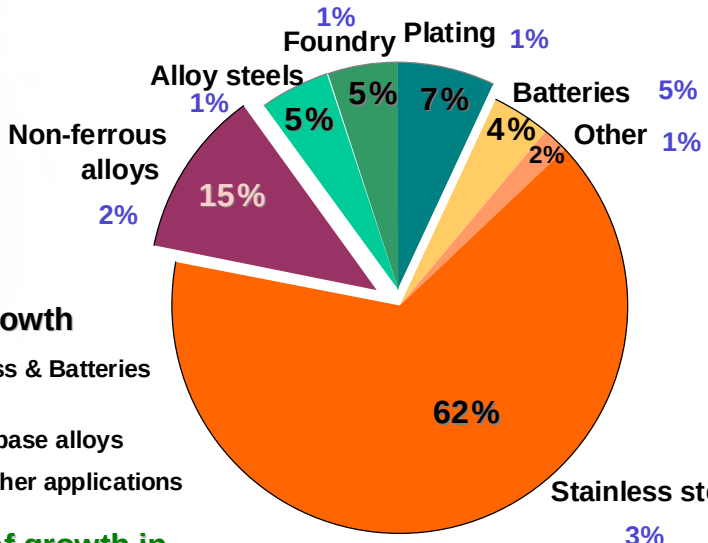
Global primary nickel by first use

1990s average growth p.a. (2%) was reduced by Russian decline



Traditional Growth

High - Stainless & Batteries (Other)

Medium - Nickel-base alloys

Low - most other applications

But pattern of growth in China was different e.g higher growth in plating

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Nickel industry profitability drivers

Threat of new entrants
MEDIUM

Finite supply of world class deposits

Capital intensive > US$ 2Bn

Supplier power
HIGH

Host government

Licence to operate

Mining code

Environmental

Industry rivalry
MEDIUM

Buyer power
MEDIUM

Stainless industry horizontal integration top 5 account for > 50% of global output

Complicated by increased fund activity

Threat of substitution
MEDIUM

Outstanding performance of stainless but some AISI 200 & 400 substitution of 300 series

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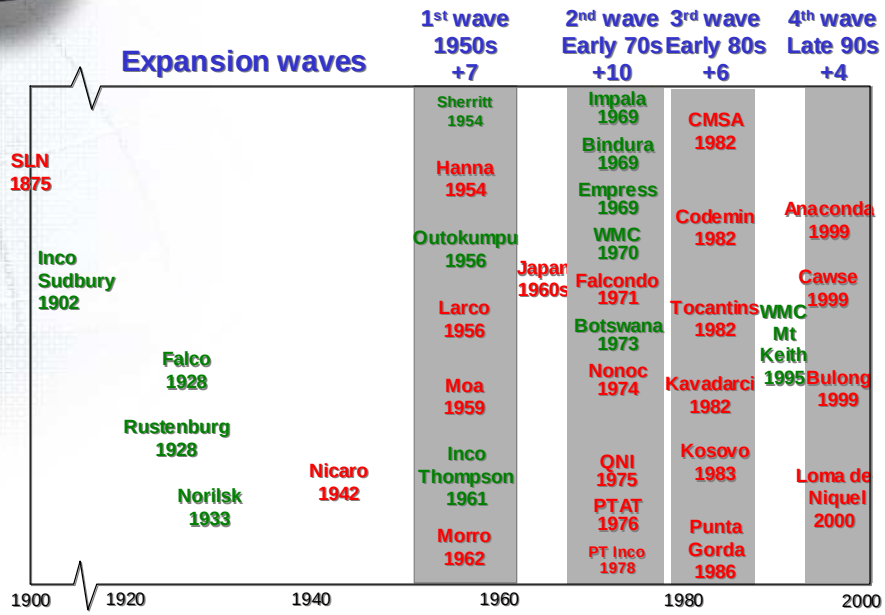
Forget trends – nickel projects come in waves, usually lagging demand



Source BHPBilliton

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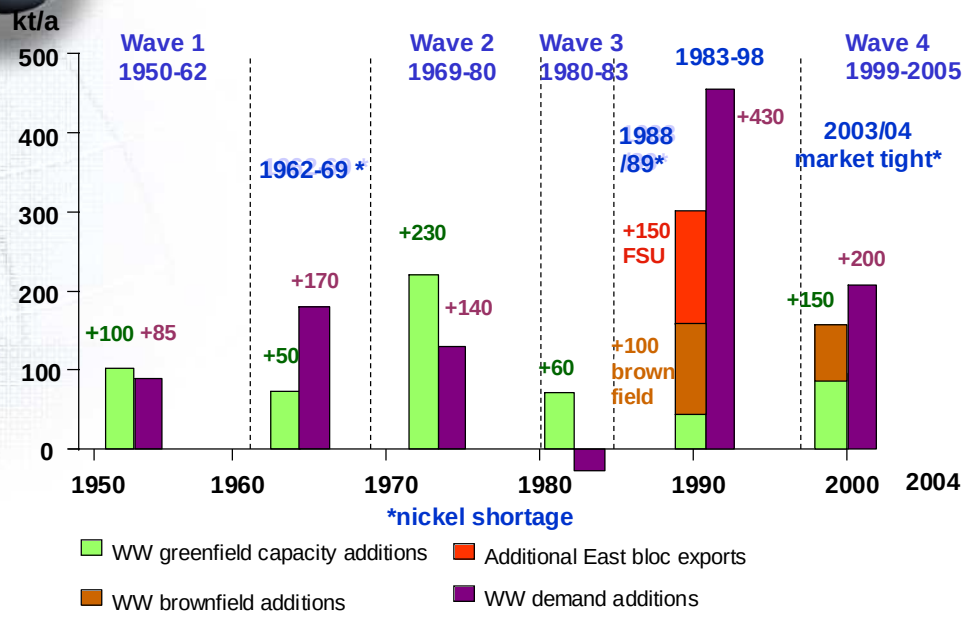
Primary nickel supply waves rarely match growth in nickel use



Source BHPBilliton

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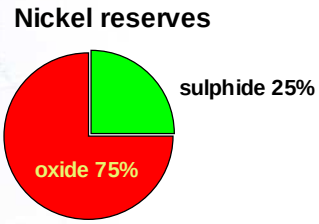
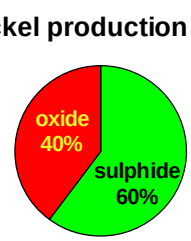
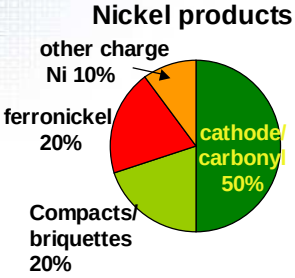
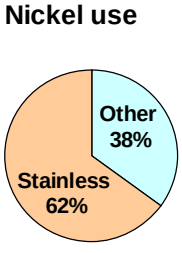
Greenfield projects mainly oxide ores









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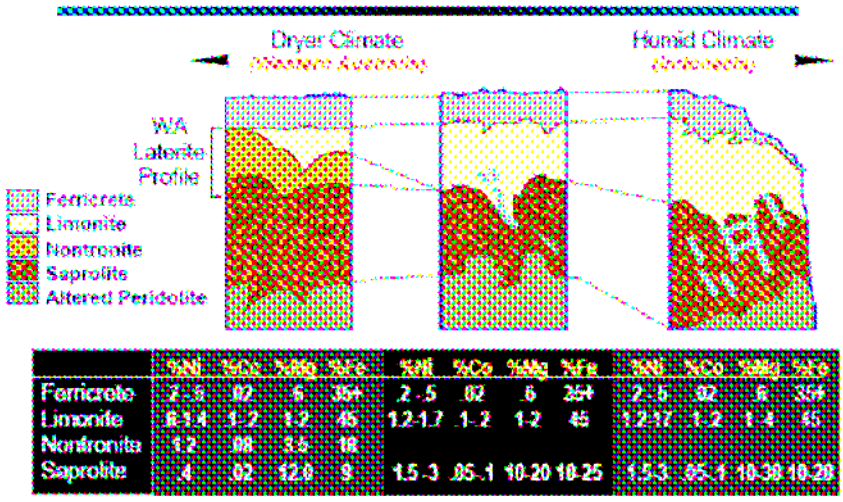
Laterite Profiles: Wet and Dry Laterites



	%Ni	%Co	%Mg	%Fe	%Ni	%Co	%Mg	%Fe	%Ni	%Co	%Mg	%Fe
Ferricrete	2 -3	02	5	35+	2 -5	02	6	25+	2 -5	02	6	35+
Limonite	1.3-1.4	1.2	1.2	45	1.2-1.7	1-2	1-2	45	1.2-1.7	1.2	1.2	45
Nontronite	1.7	08	2.4	16								
Saprolite	4	02	12-0	9	1.5 -3	.05-1	10-20	10-25	1.5-3	.05-1	10-20	10-25

Source: Inco presentation to PDAC 2004, Toronto

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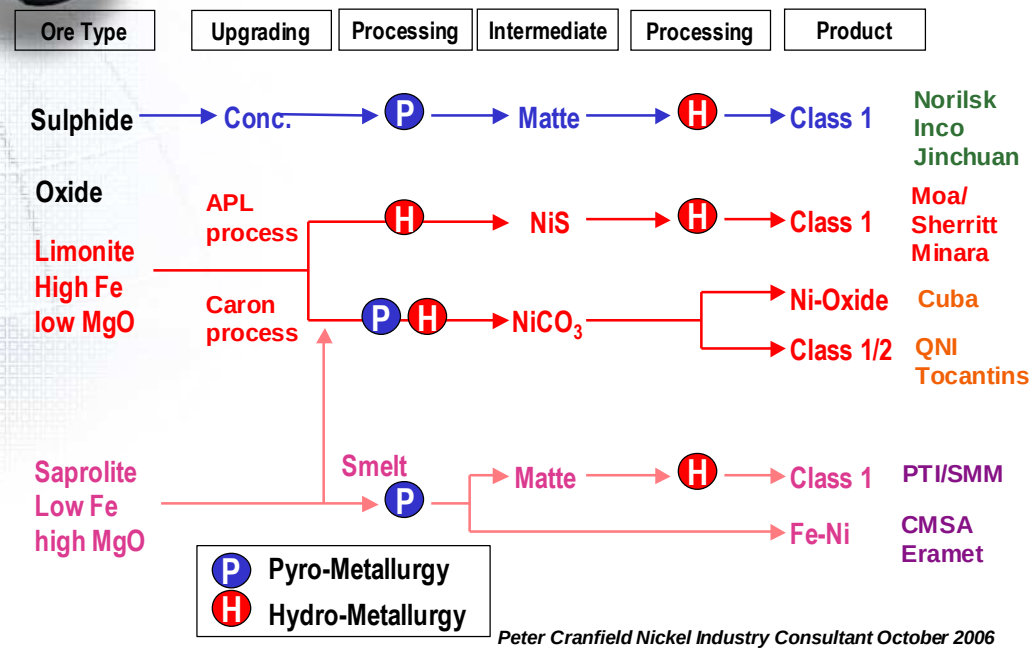
Nickel ores & production processes



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Critical Success Factors for a greenfield nickel project

- Orebody high tonnage and grade plus good chemistry eg low MgO for APL
- Acceptable fiscal and legal frameworks of host government
- Ability to acquire necessary permits in reasonable time frame
- Infrastructure – port, rail, power availability
- Local stakeholders onboard e.g lack of native title issues
- Favourable topography for tailings dam etc
- Ability to meet environmental and occupational health standards
- Acceptable factor costs, energy, wages, acid availability and cost
- Major mining companies to apply first world standards, with implied cost burden, regardless of location
- Capital efficiency – typical greenfield integrated plant of 45 kt/a (100 Mlb/a) likely capex is > US$ 2 Bn or over US$ 20 /lb Ni

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Even the best nickel projects of leading producers are difficult to deliver

1. Voisey's Bay Nickel
   Discovered 1993 by Diamond Field Resources, acquired by Inco 1996. Open pit mine/concentrator. First concentrate 2005.
   Implementation 9 years. Issues – Innu & Inuit interests, permits, added value locally and Federal/Province Equalisation policy
2. Ravensthorpe
   Initial testwork by Comet Resources 1997 as part of pre-feasibility study. Acquired 1999 and BHPBilliton merger led to scope change to include atmospheric leach. Approval March 2004, construction started late 2004, first refined nickel due Q3 2007
   Implementation 8 years. Issues – Merger/scope change, demand for construction resources in WA and consequent capex over-run
3. Goro
   1991 Inco acquired mining title. Construction announced in 2000. Start up expected in 2008
   Implementation >8 years. Issues – Political, social and technology, capex over-run

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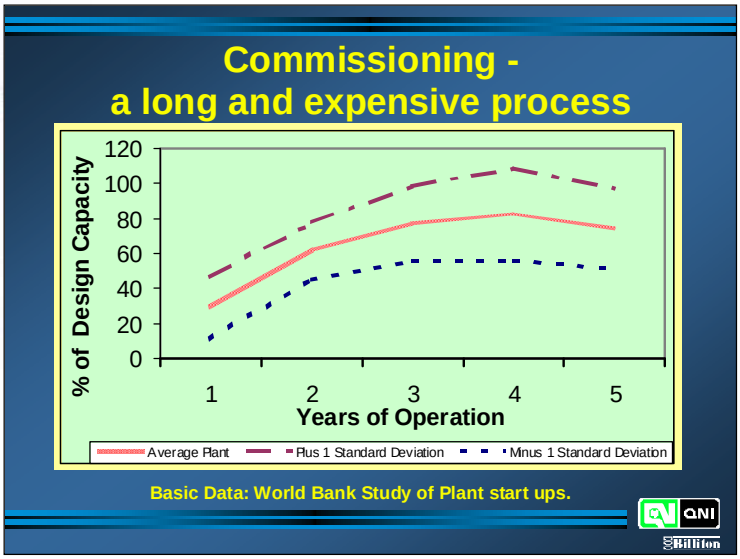
Ramp up can take 4 years



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Conclusions

- The nickel industry is at a stage of rapid horizontal integration after decades of little M&A activity of the major players
- This may tend to increase the pace at which new projects are developed
- History shows new nickel projects come in waves, lagging demand growth and high prices. A new wave is likely but not all projects will proceed and those that do will not all hit their target dates.
- The nickel industry is capital intensive, projects are complex, especially APL and lead times tend to be greater than other base metals
- In the short to medium term primary nickel supply is price inelastic
- Both nickel capital costs and operating costs have increased
- To earn its weighted average cost of capital (WACC) a new integrated nickel project will need a long term price in excess of the real terms average seen in the 1980s and 1990s

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