Sulphide Nickel Production and Supply: Market Implications

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This presentation contains "forward-looking information" including without limitation statements relating to the future price and supply and demand and the positive implications the Indonesian ore export ban will have on the outlook for nickel; and statements relating to construction and production at the Dumont Nickel Project.

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All currency references in U.S. dollars, unless otherwise stated.
Sulphide Nickel Supply Overview

- Until the last decade, nickel sulphides were dominant source of nickel production, but production has remained flat for a decade

- **Future nickel sulphide production faces significant challenges**
  - Average head grades have declined by 32% in last 20 years
  - Four of the six large mines which dominated sulphide production (In 2005, 40% of total supply, and nearly three-quarters of total sulphide production) have seen production declines of 5-35%
  - Pace of nickel sulphide exploration falling far short of market requirements
  - Few new large sulphide projects are in the pipeline: Enterprise, Nova Bollinger, RNC’s Dumont project
  - Nickel sulphide discoveries in recent years are much smaller in the last several decades
    - RNC’s Dumont project is the largest nickel sulphide discovery since 1960

- **A lack of growth in nickel sulphide production, and a reliance on laterite nickel supply, has significant implications for the nickel market**
  - As sulphides tend to be lower cost than laterites, average costs will increase
    - Sulphide ore can be upgraded, smelting is less energy intensive, and typically more byproduct value
  - RNC’s strategic alliance with Tsingshan led to development of facility which allows certain nickel sulphide concentrates (such as Dumont) to be utilized directly into NPI/stainless production
  - Laterite projects in prior round of investment have struggled – nickel market to become heavily reliant on NPI production from Indonesia and continued willingness and ability of Philippines to ship ore

- **Premature spike in nickel prices in 2014 delayed the market recovery, only a massive destocking of consumer ore stocks in China (which can’t be repeated) has kept market supplied**
  - Many physical signs pointing to approaching turn in the market
  - Nickel prices recovered quickly after prior inventory peak in 1993-94
  - Prior nickel cycles, driven by stainless restocking, should lead to price increases as has occurred in every past cycle
Nickel Sulphides No Longer Dominate Nickel Supply and No Growth Over Last Decade

Source: Wood Mackenzie, RNC Analysis
Sulphide Head Grades and Share of Production are Declining

Average Nickel Ore Head Grades by Type (%)

Share of World Nickel Production By Ore Type

Source: Wood Mackenzie, RNC Analysis
A Decade Ago, the Big Six Sulphide Nickel Operations Dominated Production

Sulphide Nickel Production (% of Total Supply)

2005

- Other: 60%
- “The Big Six” Sulphide: 40%

“Big Six” Nickel Production (% of Sulphide Supply)

2005

- Other: 27%
- “The Big Six” Sulphide: 73%

Source: Wood Mackenzie, RNC Analysis
Declining Nickel Output Trend at Largest Nickel Sulphide Operations

Norilsk Ni Production (kt)

Vale Sudbury Ni Production (kt)

Vale Manitoba Ni Production (kt)

Jinchuan Ni Production (kt)

Mount Keith + Leinster Ni Production (kt)

Voisey’s Bay Ni Production (kt)

Source: Wood Mackenzie
Significant Nickel Discoveries by Decade
A Fraction of the Required Pace

Pace of discovery is only a fraction of what’s required to meet demand – now the equivalent of ~ 2 Voisey’s Bay or 4 Nova-Bollinger discoveries EACH YEAR

<table>
<thead>
<tr>
<th>1990s</th>
<th>2000s</th>
<th>2010s</th>
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</thead>
<tbody>
<tr>
<td>Voisey’s Bay</td>
<td>Eagle</td>
<td>Nova Bollinger</td>
</tr>
<tr>
<td>Enterprise</td>
<td>Nickel Rim South</td>
<td>DUMONT</td>
</tr>
<tr>
<td>Musgrave</td>
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<td></td>
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<td>Sakatti</td>
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*Industry has only managed to deliver a few discoveries per DECADE*
Only Three large Scale Nickel Sulphide Projects Currently in Pipeline

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</thead>
<tbody>
<tr>
<td>Enterprise Nickel Mine</td>
<td>38</td>
<td>11</td>
<td>32.7 Mt @ 1.10% Ni</td>
<td>363 kt</td>
<td>40.1 Mt @ 1.07% Ni</td>
<td>431 kt</td>
</tr>
<tr>
<td>(construction complete)</td>
<td></td>
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<tr>
<td>Nova Nickel Project</td>
<td>26</td>
<td>10</td>
<td>13.1 Mt @ 2.0% Ni</td>
<td>273 kt</td>
<td>14.3 Mt @ 2.3% Ni</td>
<td>329 kt</td>
</tr>
<tr>
<td>(under construction)</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Dumont Nickel Project</td>
<td>33→51</td>
<td>33</td>
<td>1,179 Mt @ 0.27% Ni</td>
<td>3,149 kt</td>
<td>1,666 Mt @ 0.27% Ni</td>
<td>4,430 kt</td>
</tr>
<tr>
<td>(financing)</td>
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Source: RNC technical report dated July 25, 2013, Company Reports
Few Recent Large Nickel Sulphide Discoveries, Dumont Largest Since 1960

Sulphide Nickel Operations Tend to be Lower Cost Compared to Laterite Operations

2014 Average Cash Costs for Sulphide and Laterite Producers

Source: Wood Mackenzie
Sulphide Nickel Operations Tend to be Lower Cost Compared to Laterite Operations

Sulphide ore is able to be significantly upgraded (unlike laterite ore) resulting in significantly lower smelting costs and is typically found with other valuable by-product metals (Cu, Co, PGMs)

<table>
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<tr>
<th></th>
<th>2014 Average Concentrate Grade</th>
<th>2014 Energy Intensity (Smelting Cost $/t)</th>
<th>2014 By-Product Credits (ex-Norilsk, $/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphide</td>
<td>11%</td>
<td>$1,984</td>
<td>$3,549</td>
</tr>
<tr>
<td>Laterite</td>
<td>1.6%</td>
<td>$7,804</td>
<td>$838</td>
</tr>
</tbody>
</table>

Source: Wood Mackenzie
Roasted Sulphide Concentrate Potentially For Further Cost Savings

- RNC’s strategic alliance with Tsingshan, led to the development of the first integrated nickel pig iron (“NPI”) plant to directly utilize nickel sulphide concentrate as part of the stainless steel production process by roasting the concentrate.
- Significant potential benefits to producers of suitable nickel sulphide concentrate feed such as RNC’s Dumont Project:
  - Lower costs due to simpler processing compared to traditional smelting and refining
  - Higher payability than traditional smelting and refining
  - Greater flexibility for more potential partners and customers

Roasted nickel concentrate is effectively a very high grade laterite ore feed – creates new source of demand for nickel sulphide concentrate, notably at a time when many NPI and ferronickel producers face feed shortages as a result of Indonesia’s nickel ore export ban.
- Poseidon Nickel recently announced that Tsingshan had acquired 4,000 tonnes of nickel concentrate for feed in addition to existing feed contracts.
Sulphide Nickel Projects Much less Capital Intensive Than Current Generation of Laterite Projects

The capital intensity of current generation of laterite projects will make it challenging to advance new FeNi /HPAL projects.

Source: RNC technical report dated July 25, 2013, publicly available disclosure, Wood Mackenzie Ltd. (figures shown to two significant digits)
Indonesia is the Critical Factor for the Nickel Market

With the ore ban resolutely in place, Indonesia is positioned to become the world’s largest nickel producer and one of the largest stainless producers.

- How quickly can 350kt of projects be financed and built to replace NPI production from Indonesian ore in China?
  - If China took 6 years to create 450ktpa of nickel production, how long would it take for that capacity to be replaced in Indonesia given the lack of infrastructure, skilled labour, and power?
  - Financing requirements would be $17-28 billion (at recent global examples of $50-$85,000 per tonne for ferronickel projects, recent Indonesian NPI projects claimed to be lower cost)
  - Will they require projects to be successfully commissioned before financing the next ones?

- Will it happen by early 2020s? Mid 2020s? Late 2020s?
Philippines Also Critical to Global Nickel Supply

The Philippines ability and willingness to increase saprolite supply to China is another critical issue for nickel supply

- Will Philippines implement ore export restrictions as well?
  - In absence of a ban, will Philippines attract additional investment?

- What level of mining activity will communities allow to occur?
  - Will communities support significantly higher levels of mining activity?

- What level of saprolite exports can physically be supported?
  - Stockpiles drawn down in 2014?
    - Given low 1.5% saprolite prices of <$20 in 2013, a likely possibility
  - Additional mining?
    - Given resource base, many deposits can generate 2+ tonnes of limonite per tonne of saprolite. What price will be required to profitably mine saprolite if limonite markets remain weak due to iron ore weakness?
Philippines Providing Little Additional Ore to Market

YTD August ore imports from Philippines are now flat. Philippines imports into China have increased, but are providing only a fraction of the 50+ million tonnes imported from Indonesia in 2013.

Source: GTIS
Post Indonesian Ore Export Ban, Massive Destocking of Ore in China

NPI production levels only sustained through massive destocking of implied consumer ore stocks in China – *stockpiles can only be used once.* NPI production should face significant downward pressure as Philippines ore shipments decline during monsoon.

Change in Chinese Nickel Ore Port Stocks and Implied Consumer Stock Change (Mt)

Source: Ferroalloynet, GTIS, Macquarie, RNC Analysis
Implied Consumer Stock Change is difference between ore consumption, net imports, and change in port stocks
Post Indonesian Ore Export Ban, Massive Destocking of Ore in China

Ore stockpiles continue to be drawn down in 2015 even during peak Philippine shipping season – which has significant implications for subsequent NPI production levels

Change in Chinese Nickel Ore Port Stocks and Implied Consumer Stock Change (Mt)

- Port Stocks
- Consumer Stocks
- Net Change

Source: Ferroalloynet, GTIS, RNC Analysis
In H1 2015, Chinese refined nickel and ferronickel imports surged as high grade Indonesian laterite nickel ore stockpiles are largely depleted.


- FeNi imports have surged as high grade portside ore stocks have reached critical lows
- “Qingdao” effect results in movement of nickel from China into LME warehousing system

Source: GTIS, Macquarie
Nickel prices have been largely trading at a premium in China since the beginning of 2015 for the first time in many years.

Source: Antaike
European Scrap Discounts at Highest Level Since 2012

Europe Stainless Steel Scrap (as % LME Cash Price)

Scrap discounts highest since late 2012

Source: CRU
Nickel Prices – Lessons from Last Inventory Peak

At prior nickel inventory peak, it took only 3 months and a 6% decline in inventories before nickel prices hit their peak for that cycle (a 150% increase in prices in just 18 months from trough to peak)

(Prior Inventory Record – Weeks of Consumption)

Bracketed amount is 2014 equivalent of 1994 inventory levels adjusted for weeks of consumption

Source: Metalprices.com, RNC Analysis
Nickel price moves have always been explosive even without China. Again, why would it be different this cycle?

*Remember that a 150-300% price increase from a $9,300 trough is $23-$37,000!!*

**Nickel Price Increase (Trough to Peak)**

Source: MetalPrices.com, RNC analysis