Trends in world copper usage

International Copper Study Group
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Agenda – trends in world usage

1. Key Themes in Global Copper Consumption Growth
2. What of the Old World?
3. ...and Where in the New World?
4. In Which Properties and Applications?
5. Conclusions
27Mt of copper is in absolutely everything...

Fragmented – numerous products, diverse end use markets

Many pieces – they rarely all fit together!
Short term forecasting - Key national drivers of first use consumption

In the Wood Mackenzie copper team’s view...

- Population growth
- Industrial production
- Cathode / Scrap availability
- Change in semis \ W&C capacity
- Trade balance in semis
- Trade balance in W&C

Copper Demand Metrics
Short term outlook for first use refined consumption 2014-2017 - Piecing together world copper demand…

A combination of cyclical positives and structural changes in fabricating capacity…

Source: Wood Mackenzie
US semis mills finally saw a recovery...before winter fell

Monthly semis output (kt, year-on-year % change)

Favourable industry trends...!?

- Reading Tube opened its new $60M cast and roll commercial tube mill. (October 2013)
- Encore Wire reports 18% y-o-y surge in copper building wire volumes. (Q4 2013)
- Golden Dragon to open its new Wilcox County, Alabama, commercial tube plant. (Q1 2014)
- Global Brass and Copper Holdings Inc. announces 3.9% rise in full year 2013 volumes. (March 2014)

- The order backlog for one major supplier was $500M (8 months sales) at year-end 2013.

12M additional customers since 2008; 4M in 2012 alone. The new consumers are younger and more of them are female.

“Currently sales are only limited by product availability.”

Source: ABMS, WBMS, Wood Mackenzie

Sales US$M

2000 2006 2012
A changing West European industry landscape in semis and W&C


- Few countries untouched by restructuring
- Consolidation down to one surviving national player in extreme cases (UK plumbing tube)
- Thomas Bolton (UK) enters administration
- Plant rationalisation and job losses in W&C (Prysmian, Nexans and NKT)
- EU Commission power cable fines due...
- Strong order book in submarine power cable...
- …and automotive is definitely recovering
- Offshore renewables slow (winter storms, EU energy policy regulatory difficulties)
- Substitution pressures are largely unabated
- An uncertain outlook…some brighter signs…
- …hopefully better than 2013 outturn
- Growth centred on Germany and UK

Source: Wood Mackenzie
Russia and Poland – exports rise as domestic demand stalls

Tariff incentivised rod exports...

Telefonika Kabel begins restructuring...

Source: GTIS, Wood Mackenzie
Abenomics - bringing short term cyclical relief to Japanese mills

But structural factors are largely adverse...

- Weak Yen boosts exports directly and indirectly
- Cyclical recovery in building / construction
- Autos and electrical products also stronger
- Rationalisation / retrenchment by product line
- Infrastructure plans (+) consumption tax (-)
- Offshoring to China, Taiwan and ASEAN
- All new semis and W&C investment is overseas
- “China plus one” to balance country risk
- ASEAN, India, Mexico, Russia, North Africa…
- New vehicle assembly plants also overseas
- Growing imports from low labour cost locations
- Declining and aging population
- Structural decline in first use consumption

Source: Wood Mackenzie
Rewriting history – The Battle of the Coral Sea (2014)

Location of ASEAN and Oceania rod mills (2014-2016/17)

Australian trade balances in rod & drawn wire, wire & cable (kt, 2008-2013)

Source: Wood Mackenzie
“A man in a hurry will always be unhappy in Brazil”

Peter Fleming

- Sao Paulo – highest per capita private helicopter ownership!
- Paranapanema semis output +18% in 2013; new tube mill
- Ibrame also commissioning new FRHC Properzi rod mill
- Change in tariffs on imported copper semis in 2013
- Brazil anti-dumping duties on Chinese / Mexican tube imports
- Chinese suppliers may face duties of 70%; Mexican 57%
- Chile - Madeco halts production and sale of copper tube…
- “It is impossible to compete on equal terms on price and cost”
The GCC – More copper than oil buried under the sand!

The Gulf Co-operation Council States

- Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Oman and Bahrain are petrochemical economies
- Also aluminium and wire & cable (30 companies)
- Highest per capita copper consumption globally
- Demand is recovering very swiftly post GFC
- Regional growth dynamics rival China (lower scale)
- KSA – MEGAPROJECTS total $600Bn!
- KSA – Power, Housing, Cities, Rail, Metro & Airports
- KSA – electricity use is 9x other Arab states
- New housing for low income segment of population
- Nuhas Oman building the region’s first copper bus bar and winding wire plant (20kt/a in April 2014)
- Expect to see further semis capacity commissioned
- Potential from Iraq and Iran also to be considered.
Broken arrow - Indian first use demand going backwards, not forwards

Indian net trade in wire rod and drawn wire

- Trade Surplus
- Trade Deficit

Rising low priced imports from the UAE, Russia and Malaysia

187kt

Indian growth stalls...

- Electrical equipment industry sales -8% in FY2012
- Wire & cable industry sales slumped 26%
- IEEMA – “Most challenging times in a decade”
- Project execution delays by distribution utilities
- Rising cheap imports from China and South Korea
- Unprecedented credit squeeze on repayments
- Slow 6% growth in H1 FY2013 (Apr-Sep)
- Wire & cable industry sales recover by 14%
- IEEMA launches “rescue plan” for the sector
- Industry surviving on cheaper raw material imports
- No “quick fix” - medium term prospects lowered

Source: GTA, Wood Mackenzie
SMM China copper fabricating capacity utilisation surveys – part 1

Wire and cable

Wire rod

Source: SMM, Wood Mackenzie
SMM China copper fabricating capacity utilisation surveys – part 2

**Sheet and strip**

- **2012**
- **2013**
- **2014**

**Tube and pipe**

- **2012**
- **2013**
- **2014**

Source: SMM, Wood Mackenzie
8.8 Mt of new rod mill capacity in 36 projects (2011-2015)

Copper rod mill projects (average size = 245 kt)

Data: Contirod, Southwire, Properzi, Wood Mackenzie
Global copper consumption metrics (kt, refined and direct use scrap)

Total copper consumption by region (kt)

World copper use by property (kt)

Source: Wood Mackenzie
The world copper demand product portfolio in early 2014...

[Graph showing the world copper demand product portfolio with various categories such as WIRE & CABLE, BRASS MILLS, Copper telecom, Copper RB&S, etc., plotted on a VOLUME GROWTH vs. PROFITABILITY grid.]
Conclusions: ♠ ♦ ♣ ♡

China (45%)
- It’s mainly going to be a China story…
- …as structural change trumps GDP!
- Jiangxi Copper’s semis +43% in 2013 (+300kt)
- 2014 - mass of rod projects, also sheet and strip
- Aluminium cable designs entering standards…

World ex-China (55%)
- RoW - Japan, Brazil, GCC & ASEAN (+ve)
- RoW - Europe, Australia (-ve); uncertainties (?)
- The future is all about electrical applications
- The scrap market is in a vacuum…
- …and copper has just become 10% cheaper!
It really is worth putting all those pieces together…

Medusa mosaic, Bignor roman villa, West Sussex, UK
For any additional information or questions about this presentation, feel free to contact me

Thank you for listening!
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