

"Markets for Metallurgical Coal in Emerging Asian Economies"

Andrew Jones
Resource-Net

*Coaltrans – Emerging Asian Coal
Markets, Vietnam
November 2019*

www.resource-net.com

1

Introduction to Presentation

“Resource-Net” produces research reports (each month) on world markets for metallurgical coke, coking coal and anthracite, i.e. about pricing, supply and demand.

Today, we will discuss:

- 1. Coke Production, i.e. Demand for Coking Coal;***
- 2. Focus on South-East Asian Region (Coke, Steel);***
- 3. Coking Coal Supply & Price Development.***

www.resource-net.com

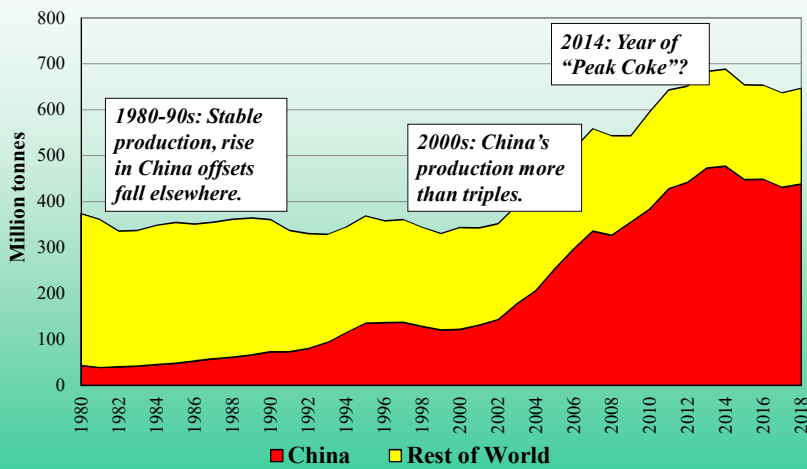
2

Metallurgical Coke Production

www.resource-net.com

3

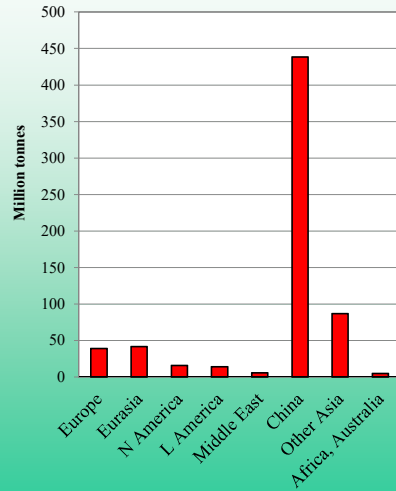
World Coke Production



www.resource-net.com

4

Coke Production by Region - 2018

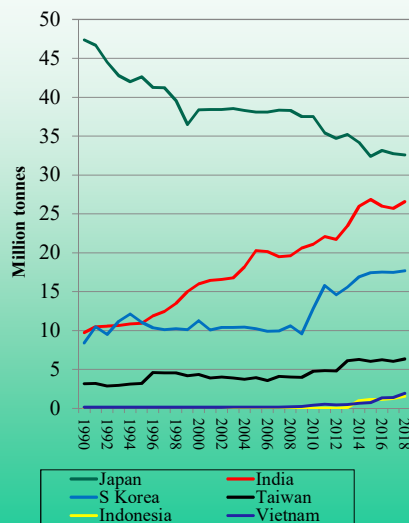


Region	Avg Annual Change % (2014-18)
Europe	-0.9%
Eurasia (Ex Soviet Union)	-1.0%
North America	-3.8%
Latin America	+2.1%
Middle East	+0.1%
China	-2.1%
Other Asia	+0.5%
Africa, Australia	-0.4%
World	-1.5%
World excluding China	-0.3%

www.resource-net.com

5

Coke Production in Asian Economies



- Coke production by Asian economies - excluding China - since 1990.
- Japanese production has been in effectively continuous decline over this period, as in other fully developed economies.
- In India, S Korea and Taiwan, there was growth until around five years ago; stabilization in recent years.
- Coke production in Indonesia and Vietnam growing, but off low base.

www.resource-net.com

6

Alternatives to Coke-Based Steelmaking?

According to World Steel Association, steelmaking accounts for 7-9% of the world's carbon dioxide emissions from fossil fuels.

Steelmaking by the coke-based blast furnace route continues to be the prevalent process: of 2017 crude steel production of 1.7bn tonnes, it accounts for around 70%. Share of the "greener" electric-arc furnace (EAF) process has actually stabilized in the last decade or so.

Efforts to mitigate future carbon emissions by the steel industry currently centre around:

- Carbon capture, then storage or utilization;
- Iron reduction with hydrogen, producing H₂O instead of CO₂. Projects in progress include Hybrit (SSAB) and Hlsarna (Tata Steel Europe). Voestalpine is trying to develop a "green" process for hydrogen (currently produced by reforming natural gas).

www.resource-net.com

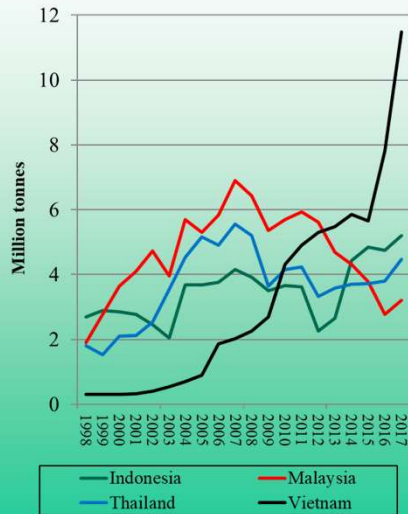
7

South-East Asian Region's Potential for Coke & Steel

www.resource-net.com

8

Steel Production in Emerging Asian Economies

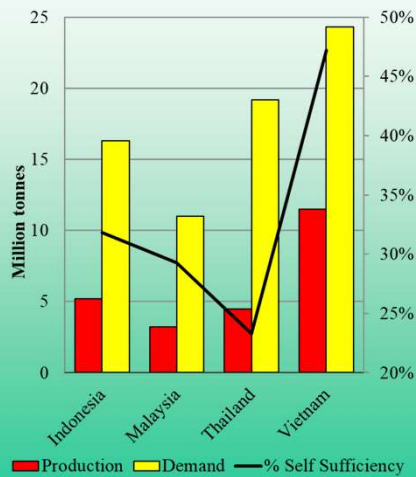


- WSA steel data for emerging Asian economies for the past 20 years.
- Most of this production has been from the EAF route. Now, integrated steel projects are emerging.
- Vietnam has emerged as the leader, its production doubling from 2015 to 2017.
- In contrast, Malaysian production peaked in 2007 and has since been lower. Thai production was also higher in the past.
- Amid some volatility, Indonesia production also continues to grow.

www.resource-net.com

9

Steel Demand in Emerging Asian Economies



- WSA data for steel production and demand, “crude basis”, for 2017, with implied self sufficiency.
- All these economies are net importers of steel.
- Of these, Vietnam has by far the highest self sufficiency at 47%.
- Figures for the other economies are less than 35%.

www.resource-net.com

10

Coke Projects in SE Asia

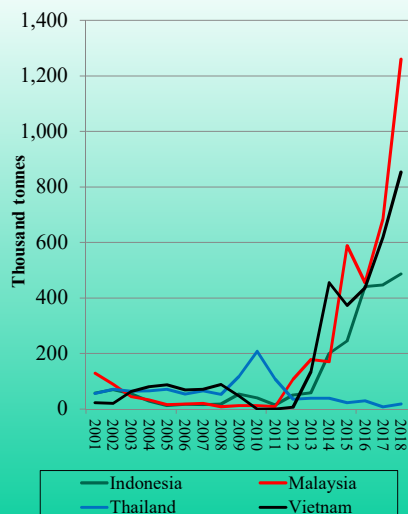
Company	Location	Coke Capacity, M tonnes/year	Batteries	Date of Commissioning
Alliance Steel	Kuantan, Malaysia	3.50	2	2018-19?
Dexin Steel	Sulawesi, Indonesia	1.30	2	2019-20
Dung Quat Steel	Quang Ngai, Vietnam	2.00	2	2019-20
Eastern Steel	Kemaman, Malaysia	2.50	2 (?)	Unknown
Ha Tinh Steel	Vung Ang, Vietnam	2.70	4	2016-2021?
Krakatau Steel	Cilegon, Indonesia	0.55	1	2017
Total		12.55	13	

Combined these projects indicate potential additional demand of 17m tonnes/year of coking coal.

www.resource-net.com

11

Coke Imports by Emerging Asian Economies



- Interestingly, south-east Asian economies have also become major importers of metallurgical coke.
- China is by far the main source for this coke; Japan also supplies some volumes.
- Applications are different for each country:
 - Indonesia – nickel smelting?
 - Malaysia – manganese alloys, iron blast furnace
 - Vietnam – blast furnaces, soda ash?

www.resource-net.com

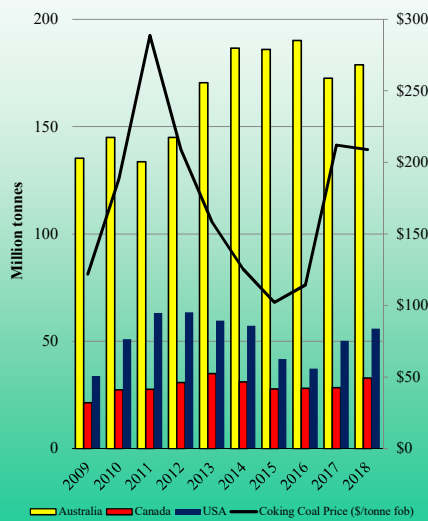
12

Coking Coal Supply & Pricing

www.resource-net.com

13

Coking Coal Exports vs Price

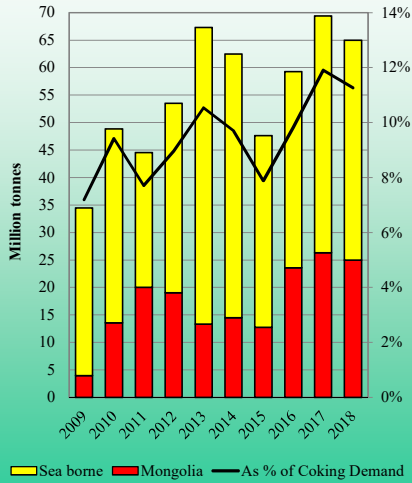


- Here, we contrast exports from the leading three suppliers versus the coking coal price (average of quarterly benchmarks).
- Pricing rebounded from less than \$120/tonne average in 2015-16 to more than \$200/tonne in 2017-18.
- Australia is by far the largest exporter, so availability from here plays a major role in pricing.
- High-cost nature of US production is evident by downturn in periods of low pricing.
- Relative stability in Canadian exports. Little room to increase production.

www.resource-net.com

14

China's Coking Coal Imports

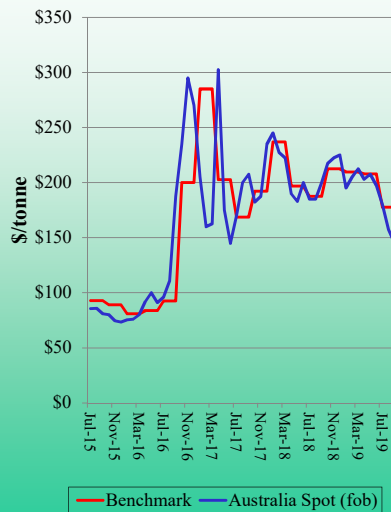


- From 2009, China emerged as major market for coking coal. Coastal provinces - accounting for 40% of China's coke production - are the main buyers of sea-borne imported coal.
- By our calculation, imports account for more than 10% of demand in the last two years.
- Significant year-to-year volatility in demand for imports. As well as controls on Chinese mines, the government has also been actively discouraging coal imports.

www.resource-net.com

15

Coking Coal Pricing



- The “quarterly benchmark” for hard coking coal is the average of published daily indices of the first two months of the quarter and of the last month of the previous quarter.
- Influences on the coking coal market include:
 - Demand from China, controls on Chinese coal mines, level of stocks;
 - Supply factors especially from Australia (weather, “take-or-pay” rail freight agreements, mine and port capacity, exchange rate).
 - Steel-related factors (production, prices).

www.resource-net.com

16

Summary & Conclusions

www.resource-net.com

17

Coke Production

Coke production peaked at 688m tonnes in 2014 (equivalent to almost 1bn tonnes of coal) and is likely to continue declining into next decade. This reflects lower steel demand rather than a shift to electric-arc furnace route.

China accounts for almost 70% of the world coke production; so it clearly has a major influence on the coke and coking coal markets.

South-east Asia is one of the few regions where coke production – hence coking coal demand – is still rising.

Hydrogen is being proposed as “green” alternative to carbon as reductant, but a viable commercial process is some decades away.

www.resource-net.com

18

South-East Asian Region's Potential for Coke & Steel

Among South-East Asian economies, Vietnam has emerged as clear leader in steel production, its volume doubling in the past two-three years. On the other hand, Malaysian steel production has been in decline for the past ten years. All these economies are net importers of steel, indicating potential for more steel capacity.

To date, most of this production has been EAF-based. But a number of integrated steel projects are under development, which might potentially create demand for up to 17m tpy of coking coal. Chinese investors in some of these projects, linked to “belt & road initiative”.

These economies – specifically Indonesia, Malaysia and Vietnam - are also significant importers of coke, primarily from China. Uses are mainly non-ferrous.

www.resource-net.com

19

Coking Coal Supply & Pricing

Australia will retain status as leading sea-borne supplier, especially in the south-east Asian region. No potential for more availability from Canada. The US takes role as “swing supplier” due to high costs.

Although demand for coking coal is in long-term decline, sea-borne trade will remain the same or even rise due to mine closures in many countries, China in particular. China has become the main driver of demand, its government's policies on coal production and imports difficult to predict.

Price indices have become widely accepted in the coking coal market, in Asia especially. This is despite concerns about the lack of homogeneity in grades compared to markets such as iron ore and thermal coal.

www.resource-net.com

20