Royal HaskoningDHV
Enhancing Society Together

Resource Development Driving Port Development Projects in South East Asia

Berte Simons
Director Mining and Heavy Industry

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Introduction

- Established in 1881 in The Netherlands
- World leader in port development and bulk handling terminals
- Turnover € 667 million
- Independent business structure
- 6,500 staff, 100 offices and 35 countries
- Show leadership in sustainability and innovation
- Top independently owned engineering companies
- “Giving-back” programme (education) part of our corporate responsibility

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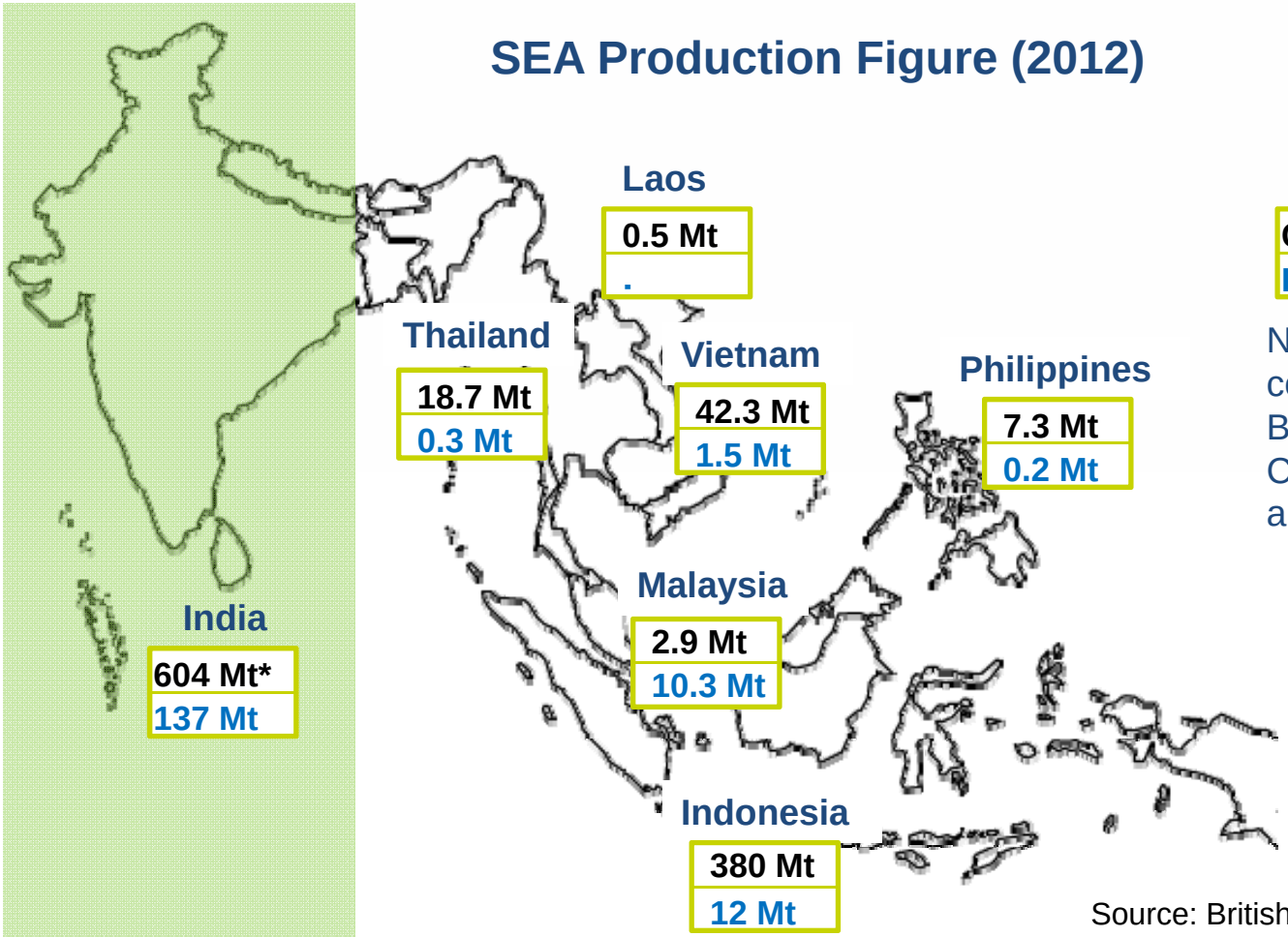
Bulk Mineral Commodities Overview

SEA Production Figure (2012)



Coal
Iron Ore

No bulk mineral commodity in: Brunei, Singapore, Cambodia, Myanmar, and East Timor

Source: British Geological Survey, 2014

*) Bituminous & Lignite

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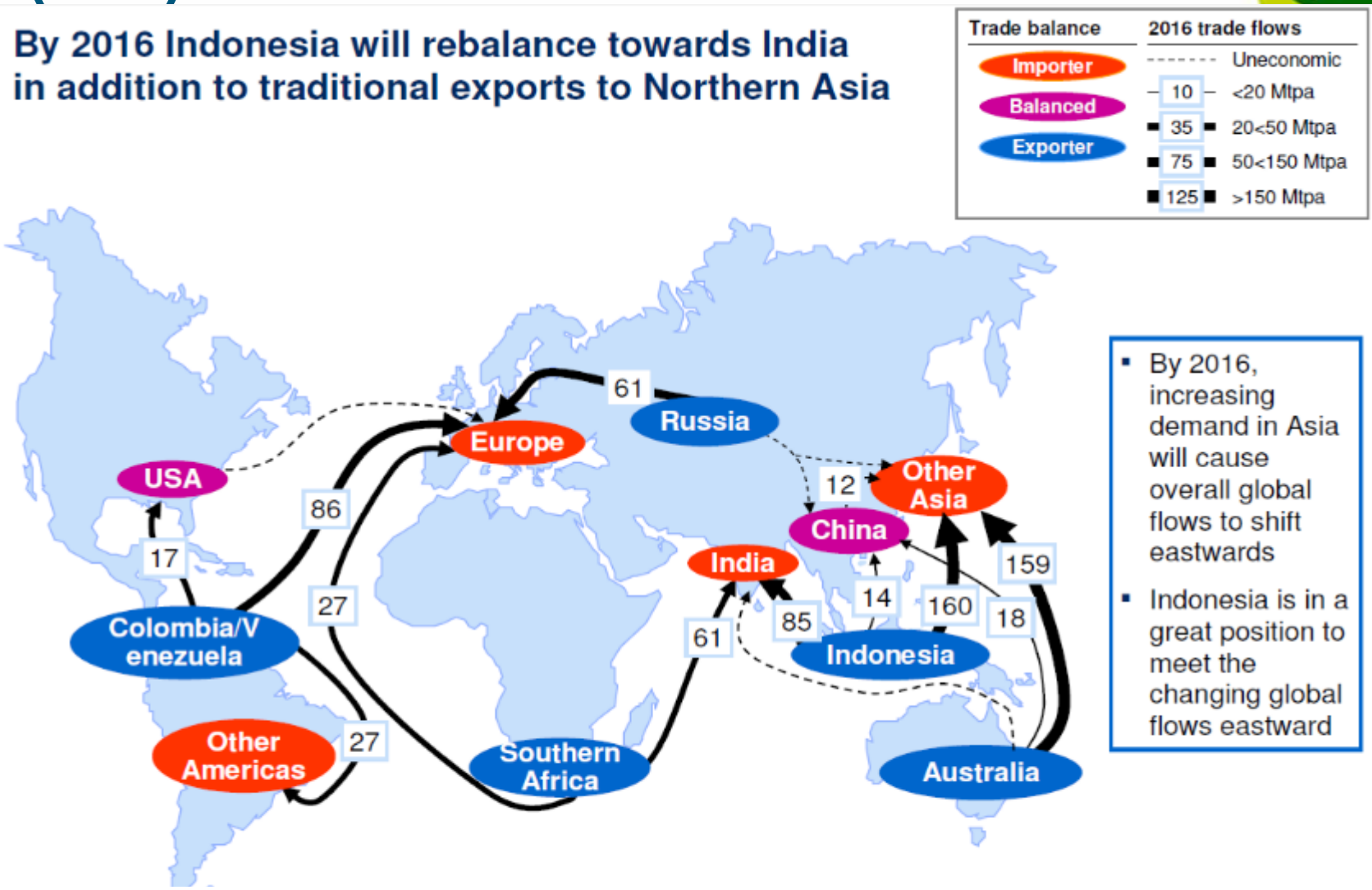
Market for Bulk Mineral Commodities (Coal)

By 2016 Indonesia will rebalance towards India in addition to traditional exports to Northern Asia



- By 2016, increasing demand in Asia will cause overall global flows to shift eastwards
- Indonesia is in a great position to meet the changing global flows eastward

Source: McKinsey Global Seaborne Coal Model, 2011

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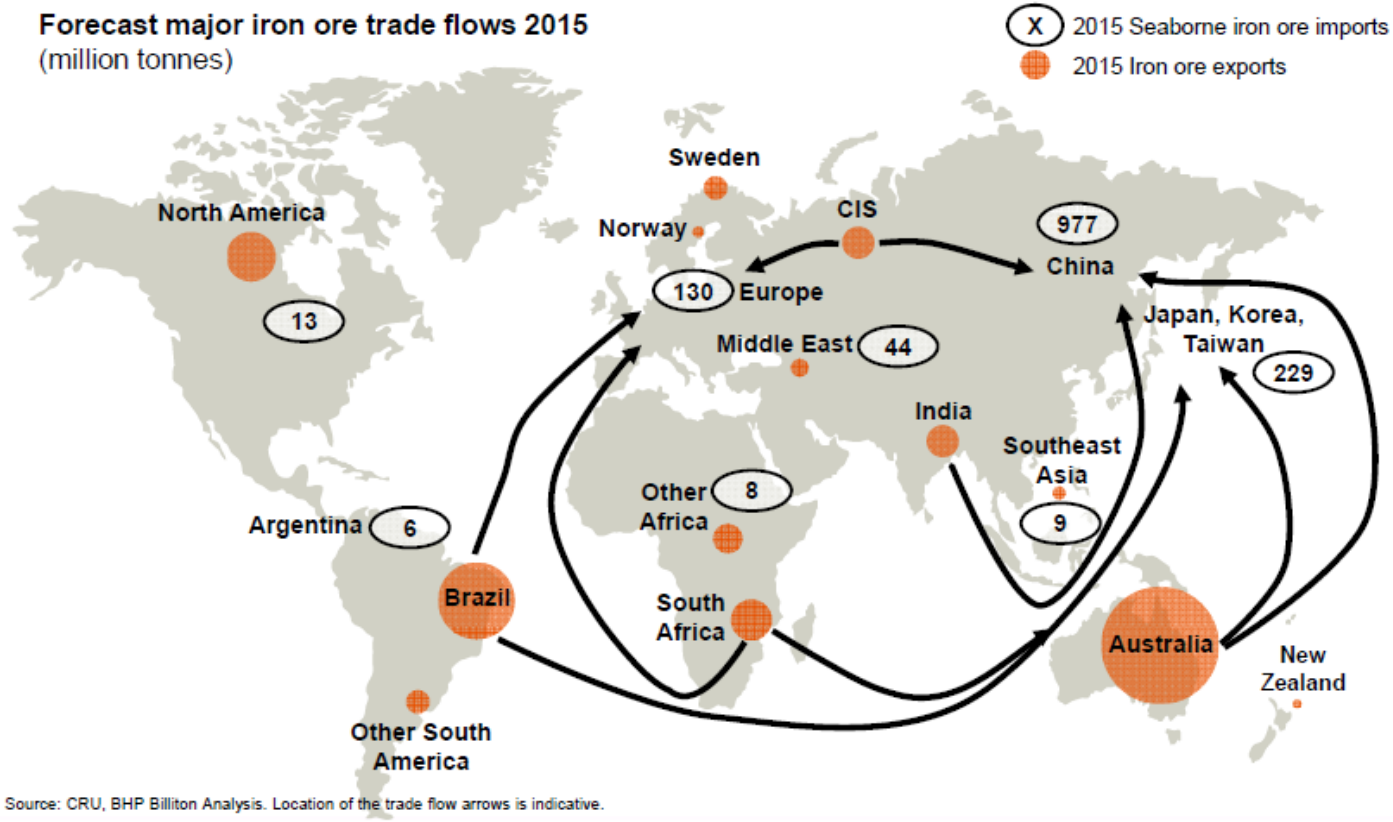
Market for Bulk Mineral Commodities (Iron Ore)



Source: CRU, BHP Billiton Analysis. Location of the trade flow arrows is indicative.

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Transport Modalities Flow

Transport Modalities:

- Road, Rail
- Inland Waterways Transport (IWT)
- Port

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Transport Modalities in SEA: Rail

- Capacity = 130 tonnes per wagon. Due to density, it can only load 60 tonnes of coal per wagon.
- Can connect 40 wagons in a single trip → cost is significantly lower compared to road transport.
- Optimal distance vary between 300 km and 600 km.
- High CAPEX and OPEX.

Table 5: Railway Network Country Ranking

Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Bad	Good	Bad	Good	Good	Fair

Source: Jones Lang La Salle

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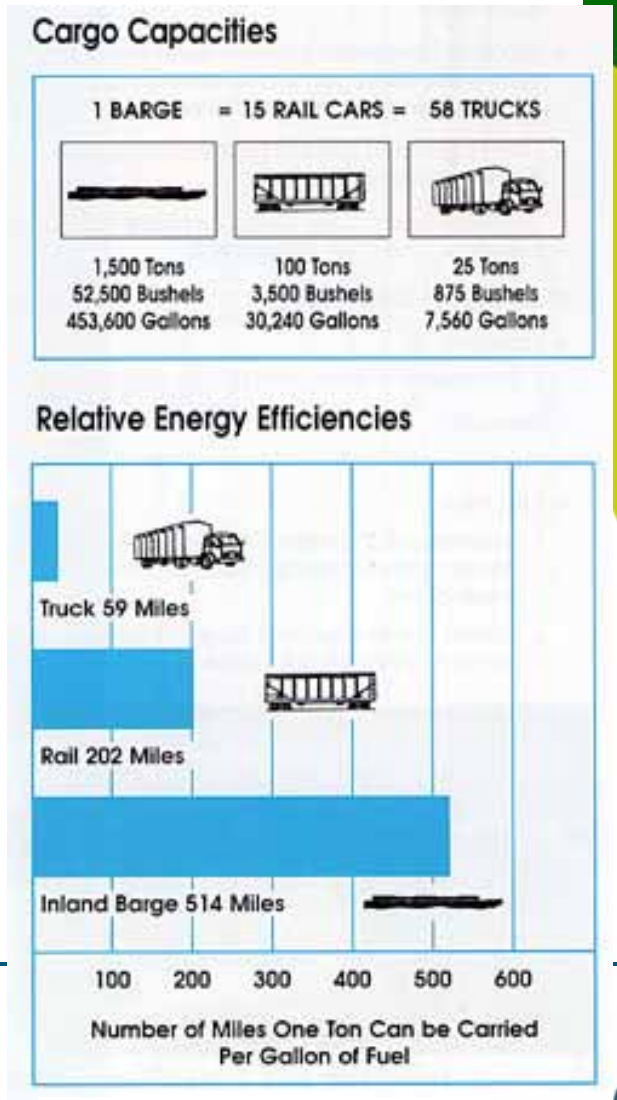
Transport Modalities in SEA: Inland Waterways Transport (IWT)

- Inland Waterways Transport sector in South East Asia are still beyond recognition compared to their vast economic potentials.
- Ironically, almost every member of ASEAN countries possess a very large inland waterways network system.

4	Indonesia	21,579
5	Vietnam	17,702
10	Myanmar	12,800
24	Laos	4,587
25	Thialand	3,999
28	Cambodia	3,700
30	Phillipines	3,219

Inland Waterways in km (world ranking)

Comparison of Road. Rail & Inland Barge Transport



Source: Christina Sun , 2011

Transport Modalities in SEA: Inland Waterways Transport (IWT)

Advantages:

- Low operating costs
- Energy efficient
- Less pollution

Disadvantages:

- Relatively slow
- Limited coverage (depends on water availability)
- Capital expensive if dredging is required
- Seasonal change can cause OPEX to increase, due to extensive dredging requirements

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Transport Modalities in SEA: Port

In some countries:

- Lack of adherence to international standards and best practices in certain parts. (Indonesia, Philippines, Vietnam)
- Poor intermodal integration and last mile connectivity. (Indonesia, Vietnam, Philippines, Thailand)
- Lack of features and capacity to handle large vessels.

re 13: ASEAN Shipping Lanes

Table 7: Port Quality Country Rating

Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Fair	Good	Bad	Good	Good	Bad

Source: Jones Lang LaSalle

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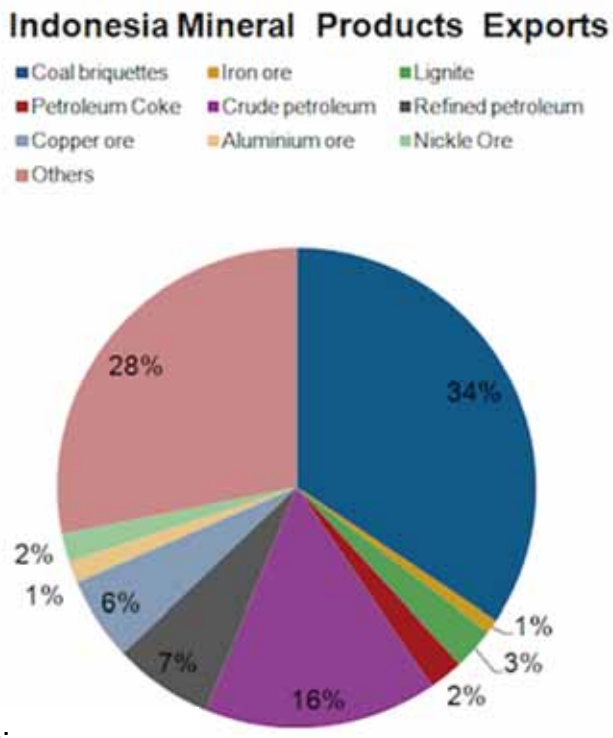
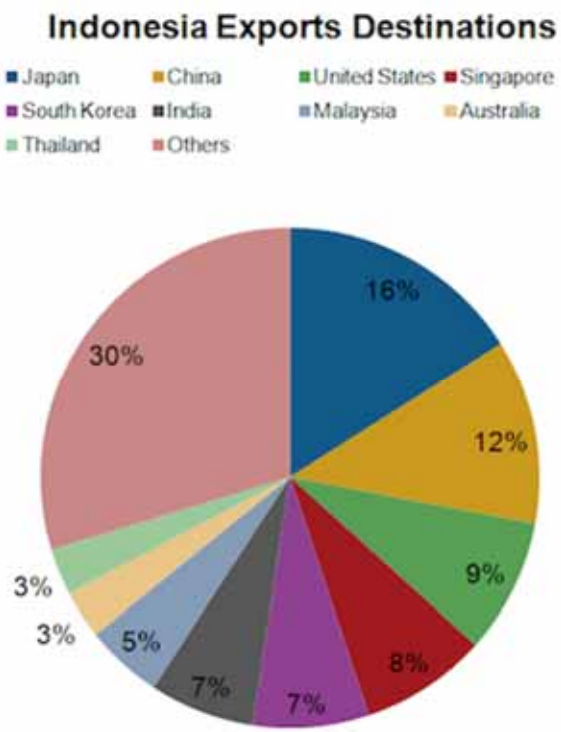
Indonesia Bulk Commodity Market

- According to data from the World Bank, Indonesia's exports of goods and services were about 24% of its GDP in 2012, and its main bulk commodity exports include coal and iron ore.





Source:
World Bank, 2012

Source: Observatory of Economic Complexity

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Coal Resources in Indonesia

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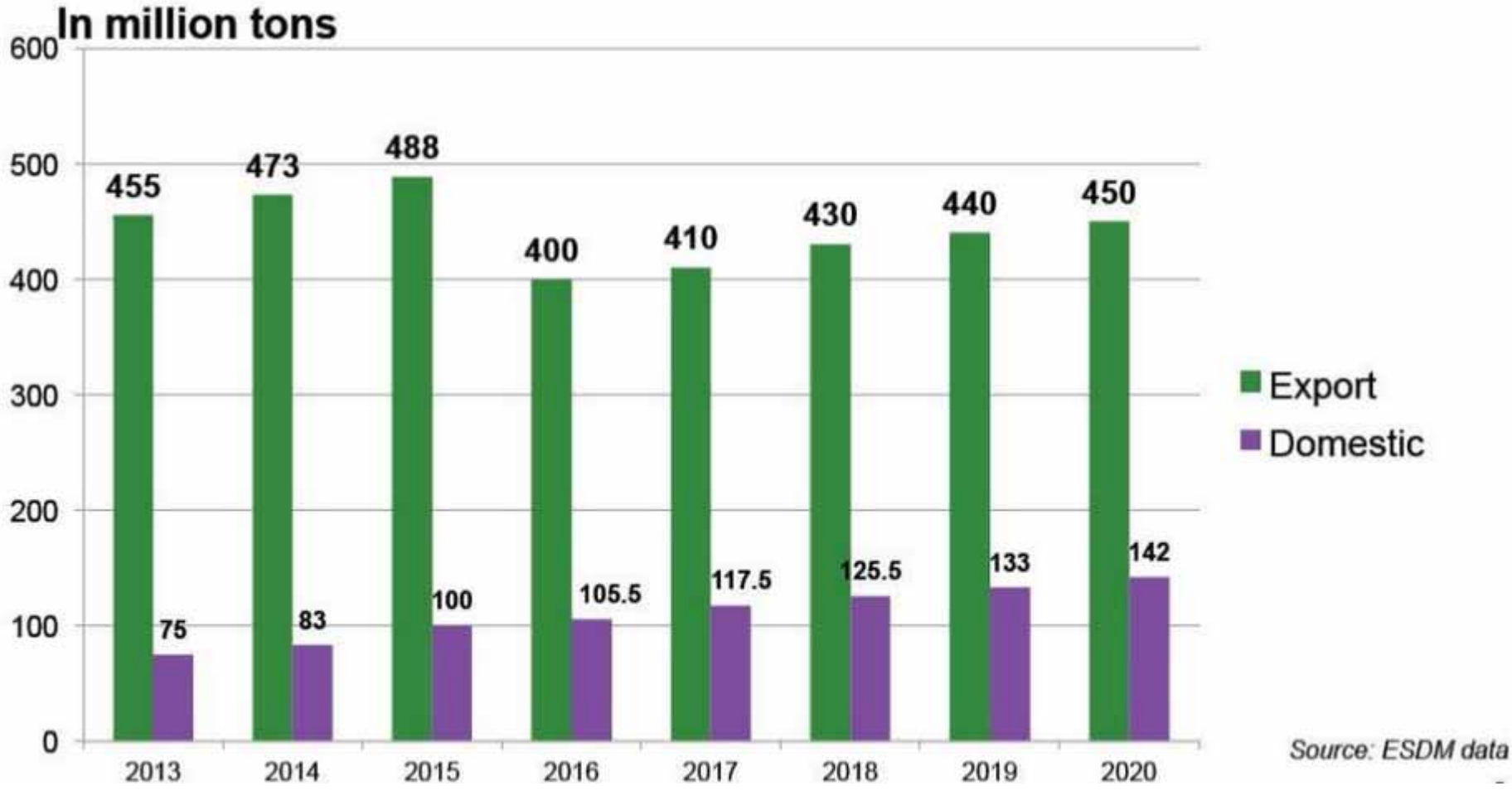
Projected Coal Production for Indonesia



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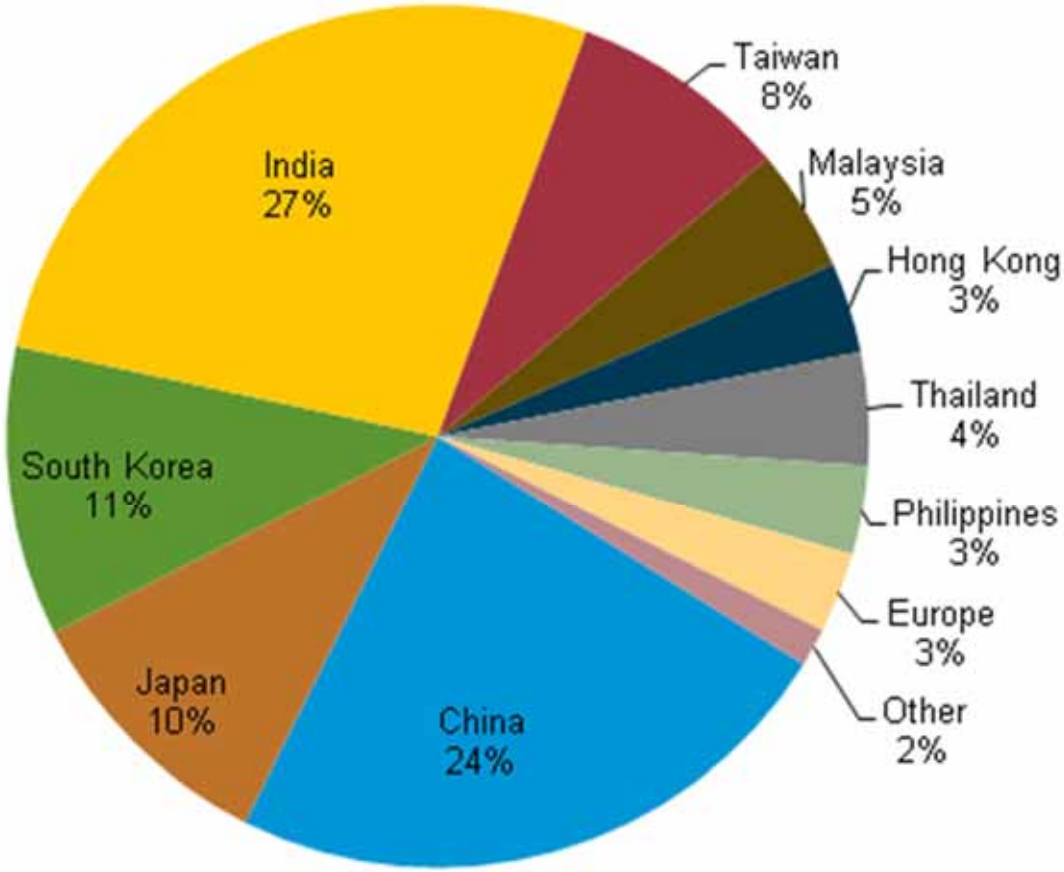
Indonesia Coal Exports by destiantion



Source: Statistical Yearbook of Indonesia, BPS Statistics Indonesia, Global Trade Atlas

Case: Logistic Problem in Bulk Commodity Transport in Indonesia

- More than 90% of bulk transportation is done via road.
- Ports, Rail, and Interland Waterways Transportation (IWT) should be more utilized. (currently only less than 8%)
- Great opportunity on maritime & waterways transportation as Indonesia comprises about 70% water (both sea and inland water) and 30% land.

INDONESIAN TRANSPORTATION SHARE

Mode	Passenger (%)	Freight (%)
Road Vehicle	84.13	91.25
Rail	7.32	0.63
Insular	4.83	0.99
Maritime	1.76	7.07
Air	1.52	0.05
Waterways	0.43	0.01

Source:
Cekindo, 2014

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Case: Logistic Problem in Bulk Commodity Transport in Indonesia

Why are IWT and Maritime Transport not effectively used?

- Some parts of the largest inland waterways are not sailable during the biggest part of the year. → need extensive dredging
- Lack of governmental support and public – private partnership → makes it unattractive for investors
- Poor coordination of infrastructure

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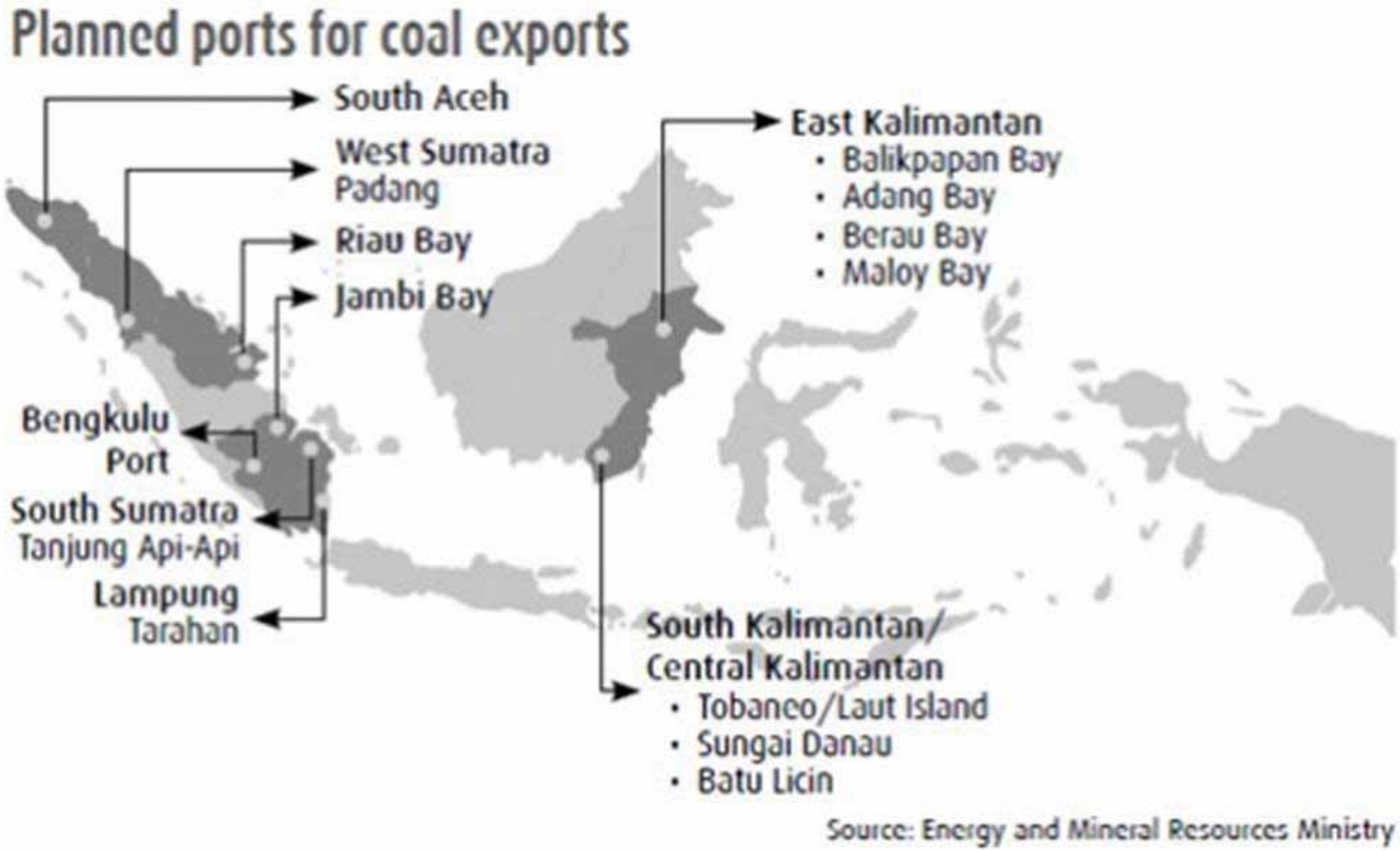
Coal Port Infrastructure in Indonesia (Current Status and Future Plan)

- Currently around 170 coal ports ranging from small to large scale exist → difficult to manage, problem in export control
- In the future, more than 14 large coal ports are planned to control coal exports (ESDM)



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Conclusion

- Demand of bulk mineral commodities (especially in coal) will continue to grow in South East Asia, particularly in Indonesia when India and East Asia countries require larger supply for their domestic consumption and vast infrastructure developments.
- Great potential on developing IWT and sea/ port transport for bulk material transportation within South East Asia.
- However, conducive regulations and governmental support are essential for further improvement in infrastructure investment climate.

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