

# Canadian Iron Ore

## A safer bet for LT iron ore supply?

Century Iron Conference, Toronto, Canada

9 October 2013

Phil Newman

# Presentation outline

- Introduction to CRU
- Why iron ore?
- What makes a good project?
- How does Canada fit in?
- Conclusions



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# Leading research group focused on mining and metals, chemicals and fertilizers

## Analysis

- Daily / Weekly news
- Fundamental analysis
- Market forecast
- Cost analysis

## Consultancy (Strategies)

- Asset & Project Valuation
- Negotiation Support
- Market Decisions
- Strategy Development

## Events

- Conferences
- Seminars
- Events
- Workshops
- Networking

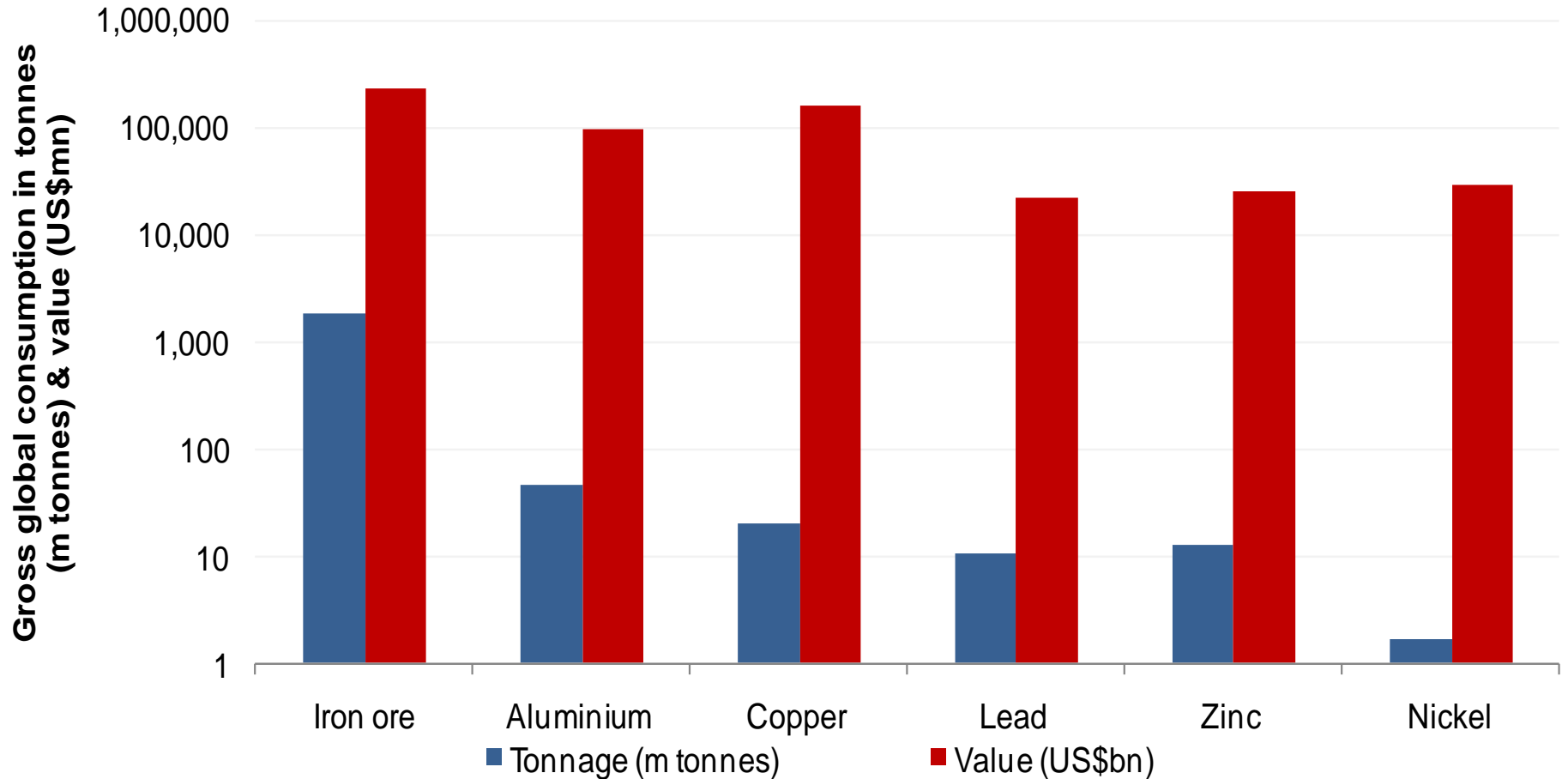
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- **Why iron ore?**
- What makes a good project?
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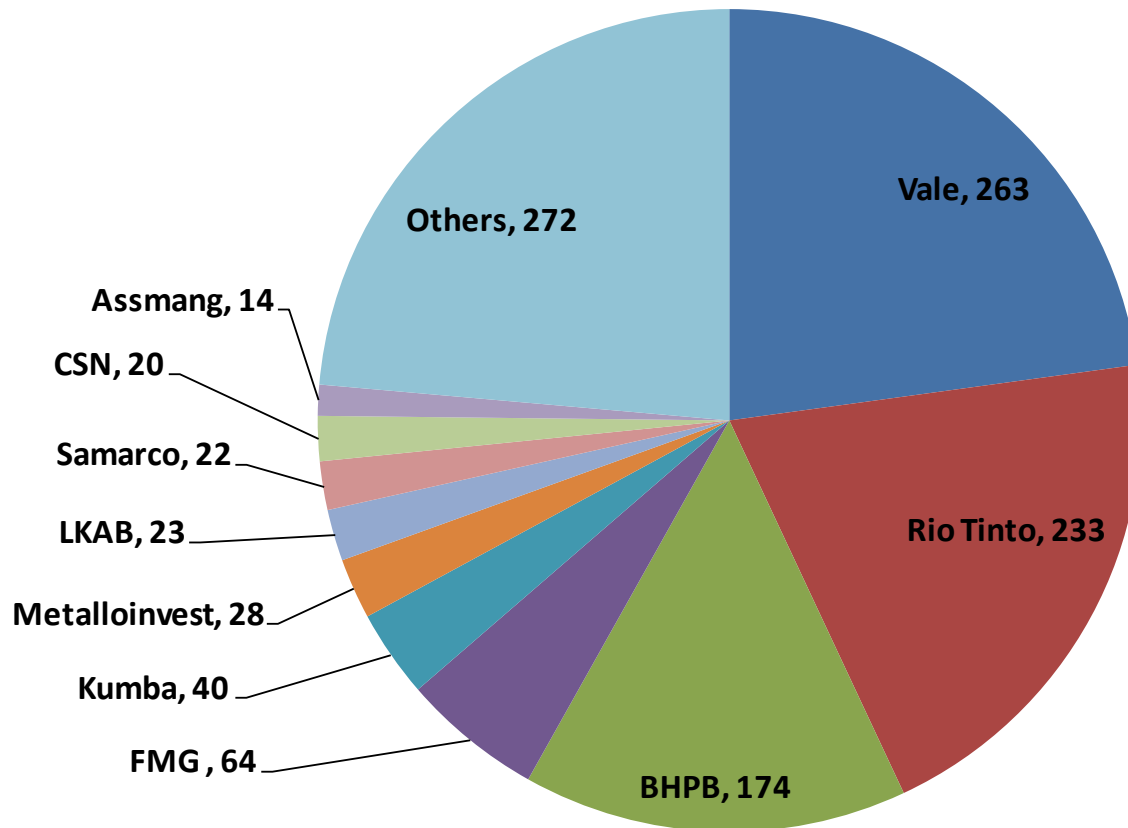
# Iron ore is the largest metal commodity by volume and value...

Shown by gross consumption in tonnes and by gross value, 2012



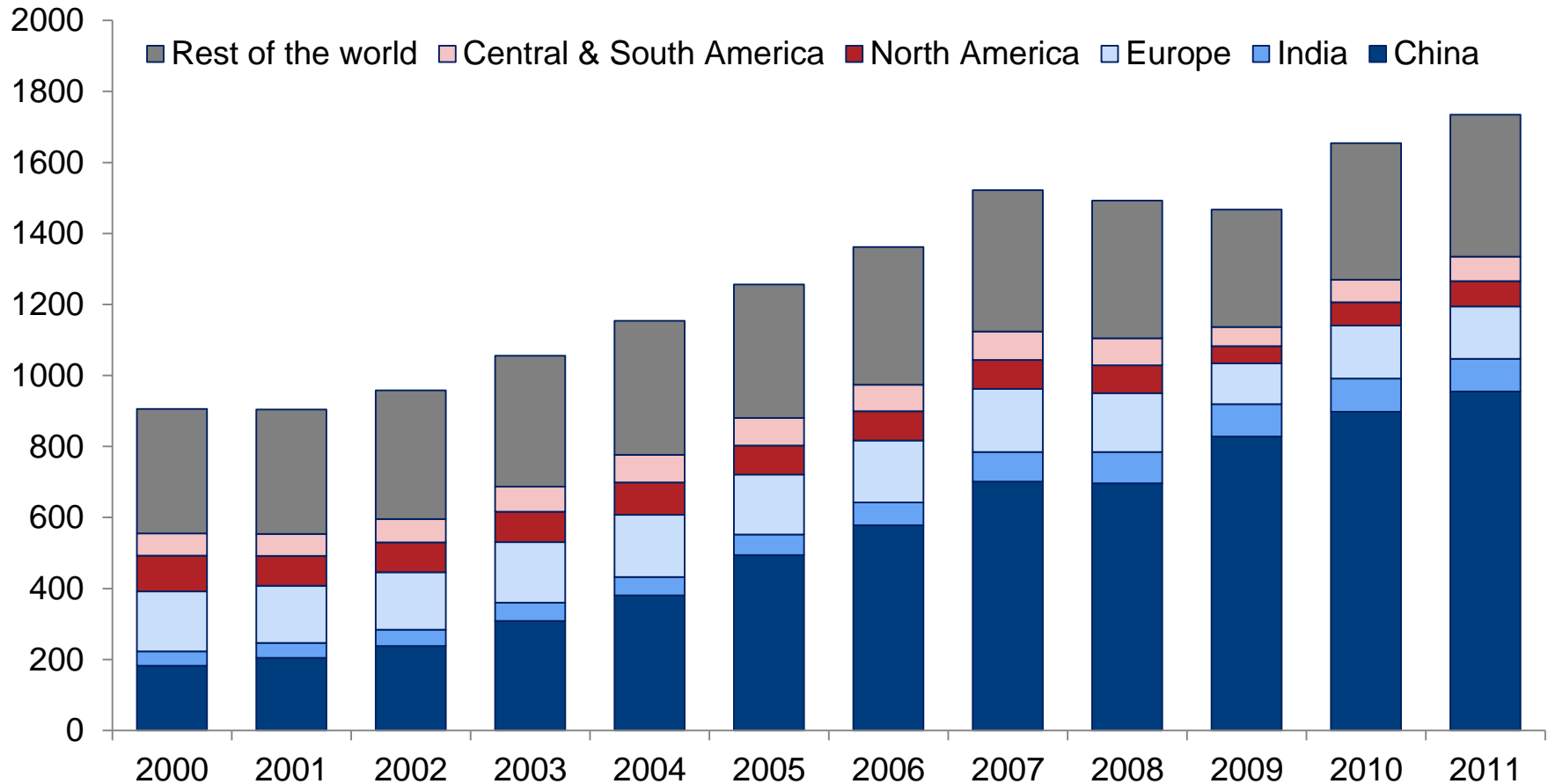
# ...its a highly consolidated industry with high barriers to entry...

Top ten iron ore exporting companies, 2012 (m tonnes)



# ...and demand is driven by economic growth and highly leveraged to China.

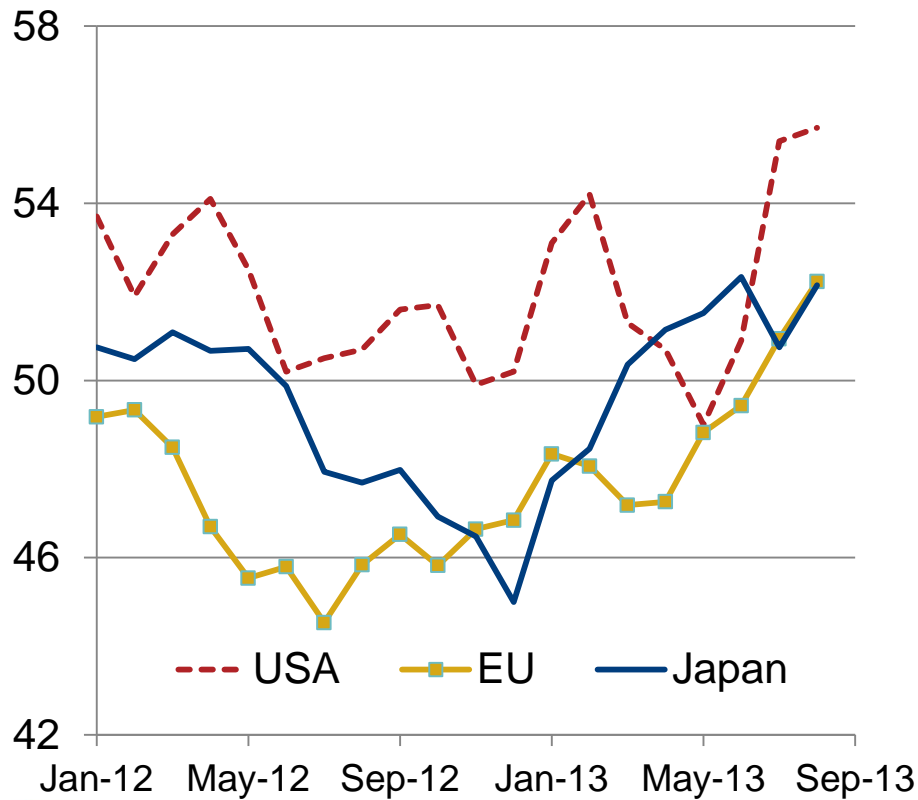
Global iron ore consumption by major region/country, 2000-2011 (m tonnes)



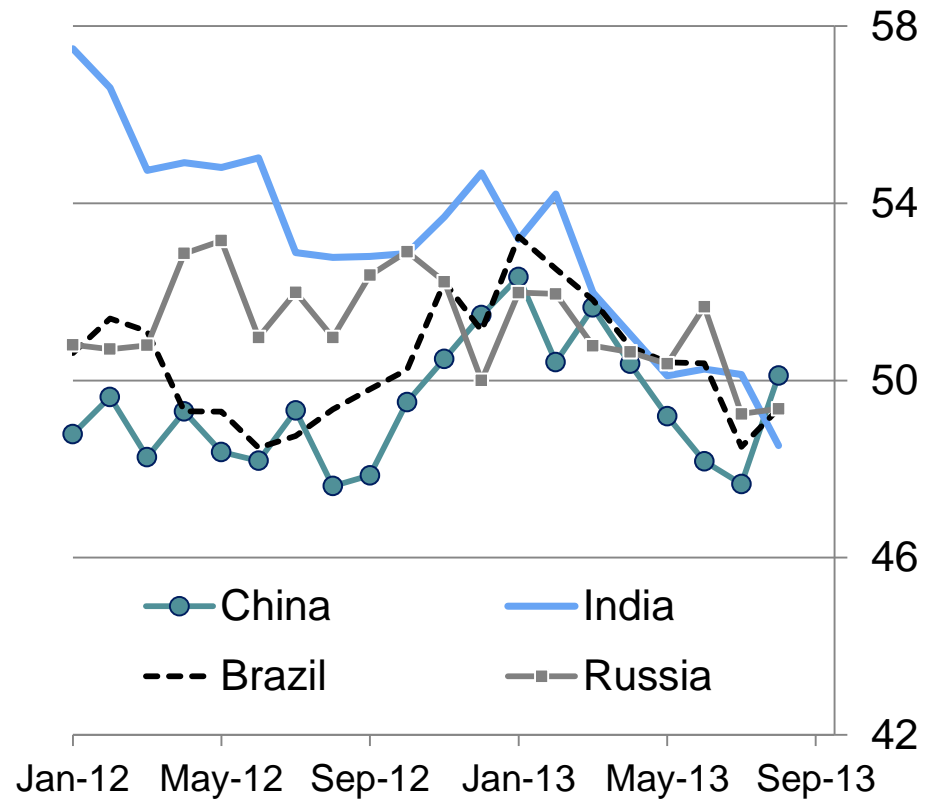


# Interestingly the OECD is now leading the recovery...

## OECD Purchasing Managers Indices for manufacturing

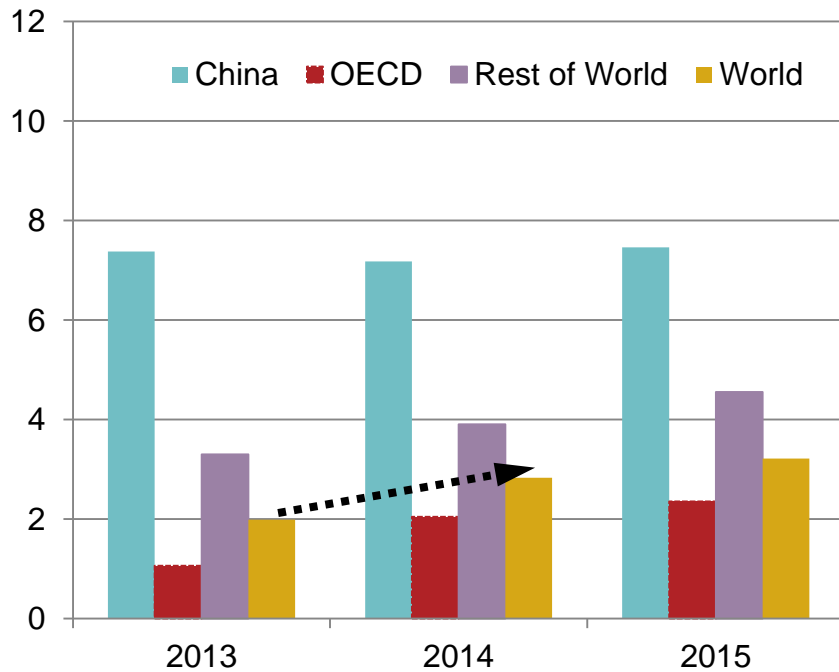


## BRICs Purchasing Managers Indices for manufacturing

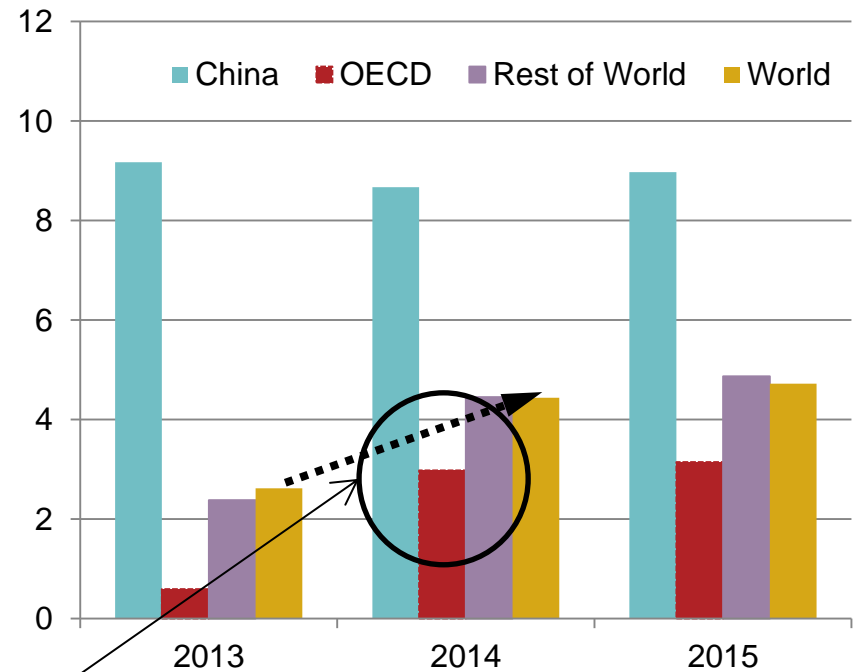


# ...and is expected to begin contributing to global economic growth again!

GDP growth, % y/y



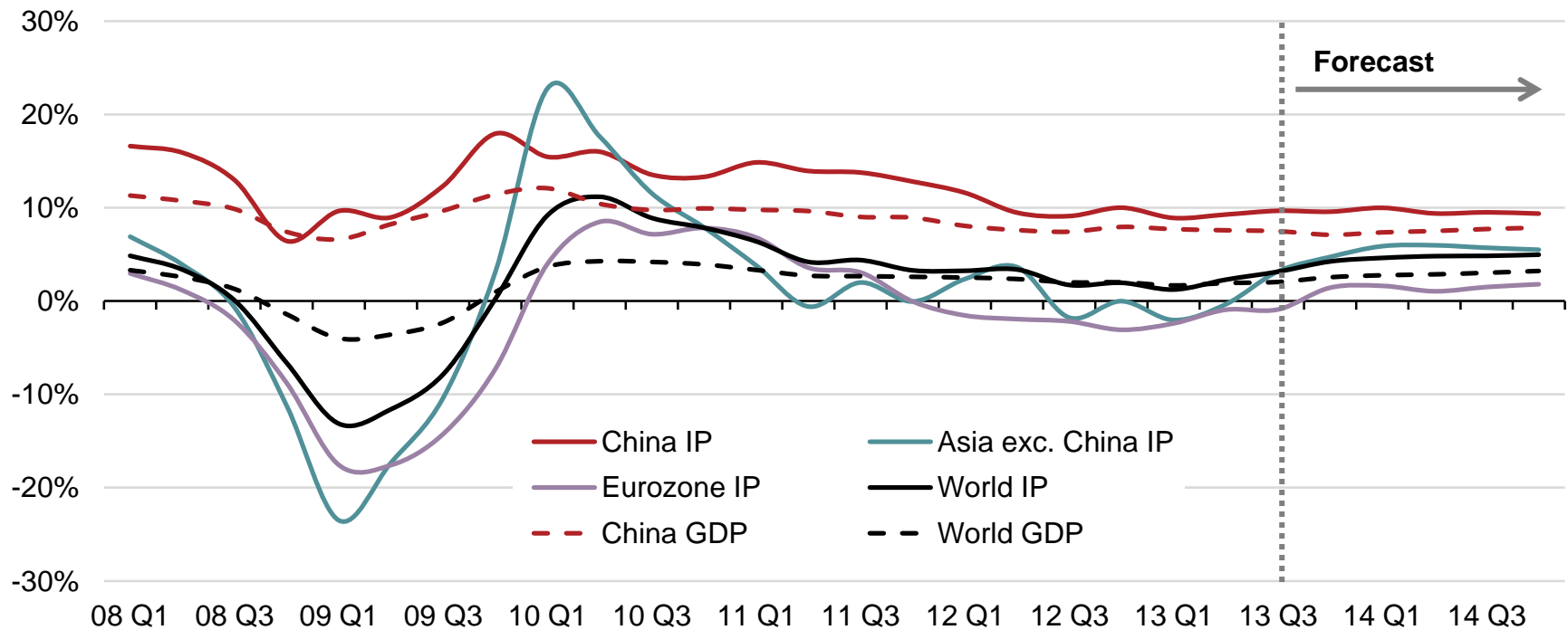
IP growth, % y/y



2014 will see both China and OECD add \$220 Billion  
Total world adds half a trillion dollars of IP next year

# Chinese growth is expected to moderate although absolute increases will remain substantial...

y/y industrial production and real GDP<sup>(1)</sup> growth by country/region, %



Looking at absolute IP addition – the metals intensive aspect of growth – the picture still looks good:

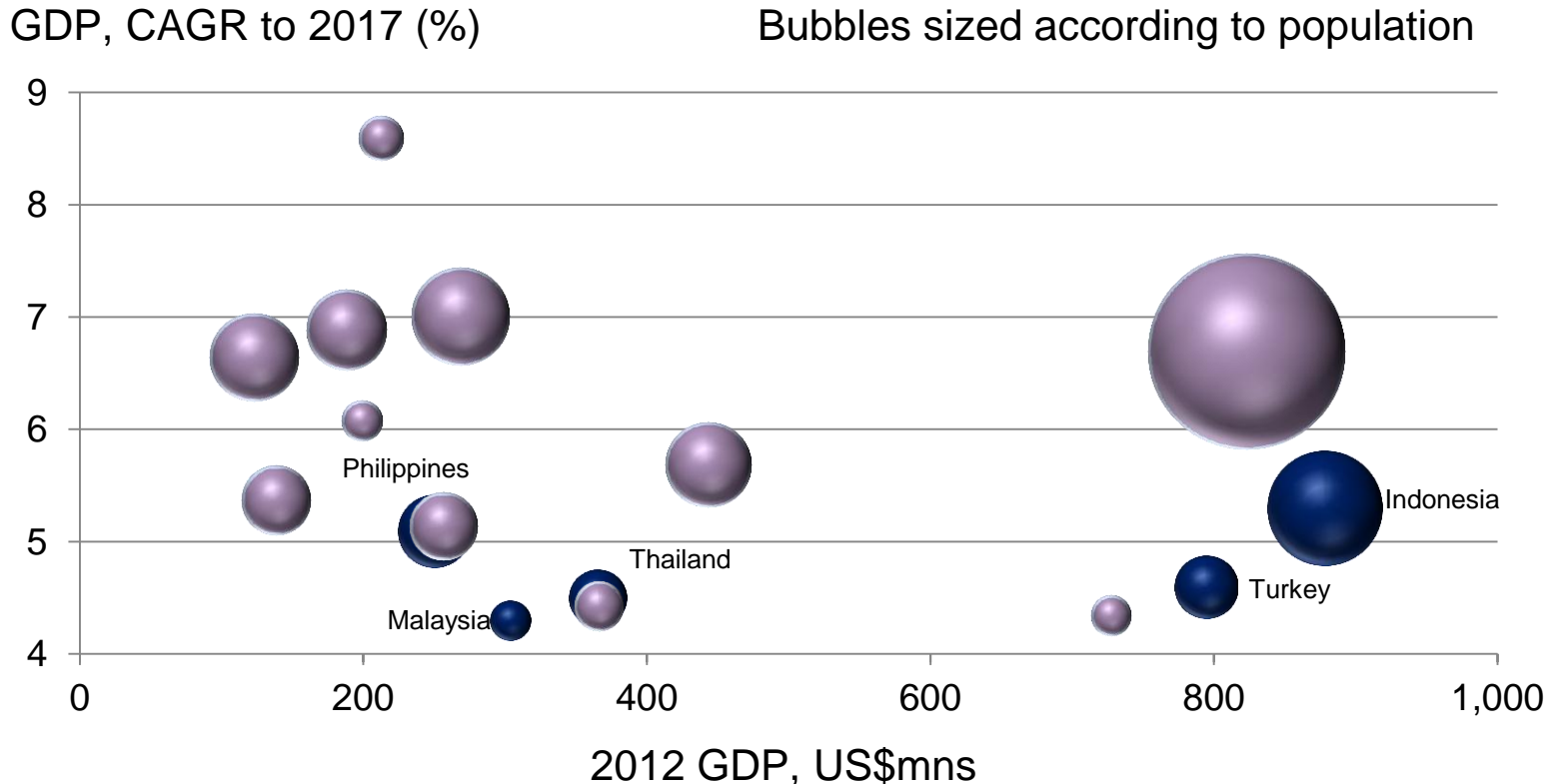
+164      +177      +237      +257      +212      +253      +263

...over the longer term who is picking up the growth baton?...



# ...no individual country is expected to have the same impact as China...

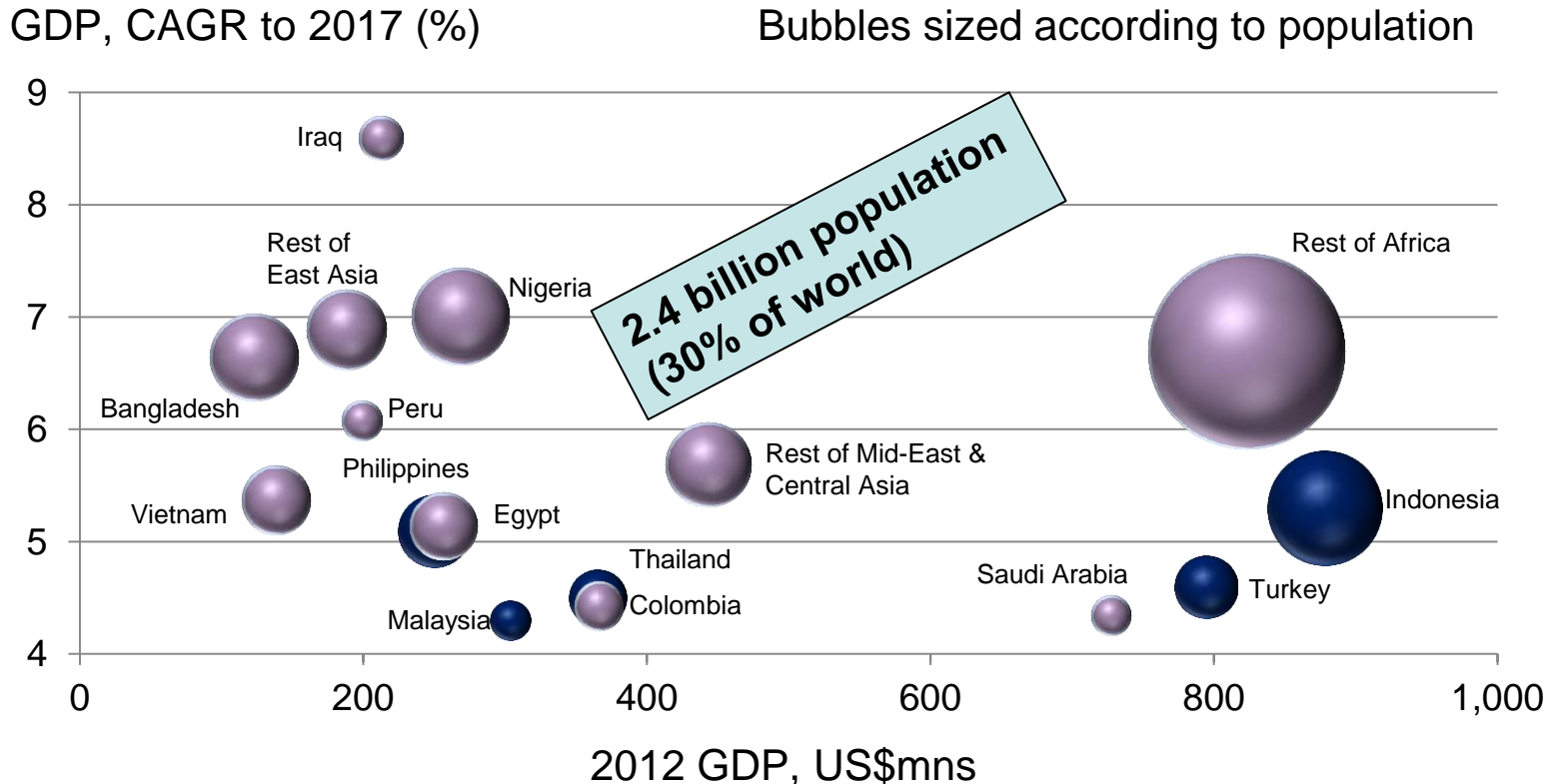
Developing countries projected to grow faster than 4.0%pa



Data: IMF, CRU. Includes only developing countries projected to grow faster than 4.0%pa, excluding India and China

# ...but there are a number of small to medium sized countries that together have a material impact

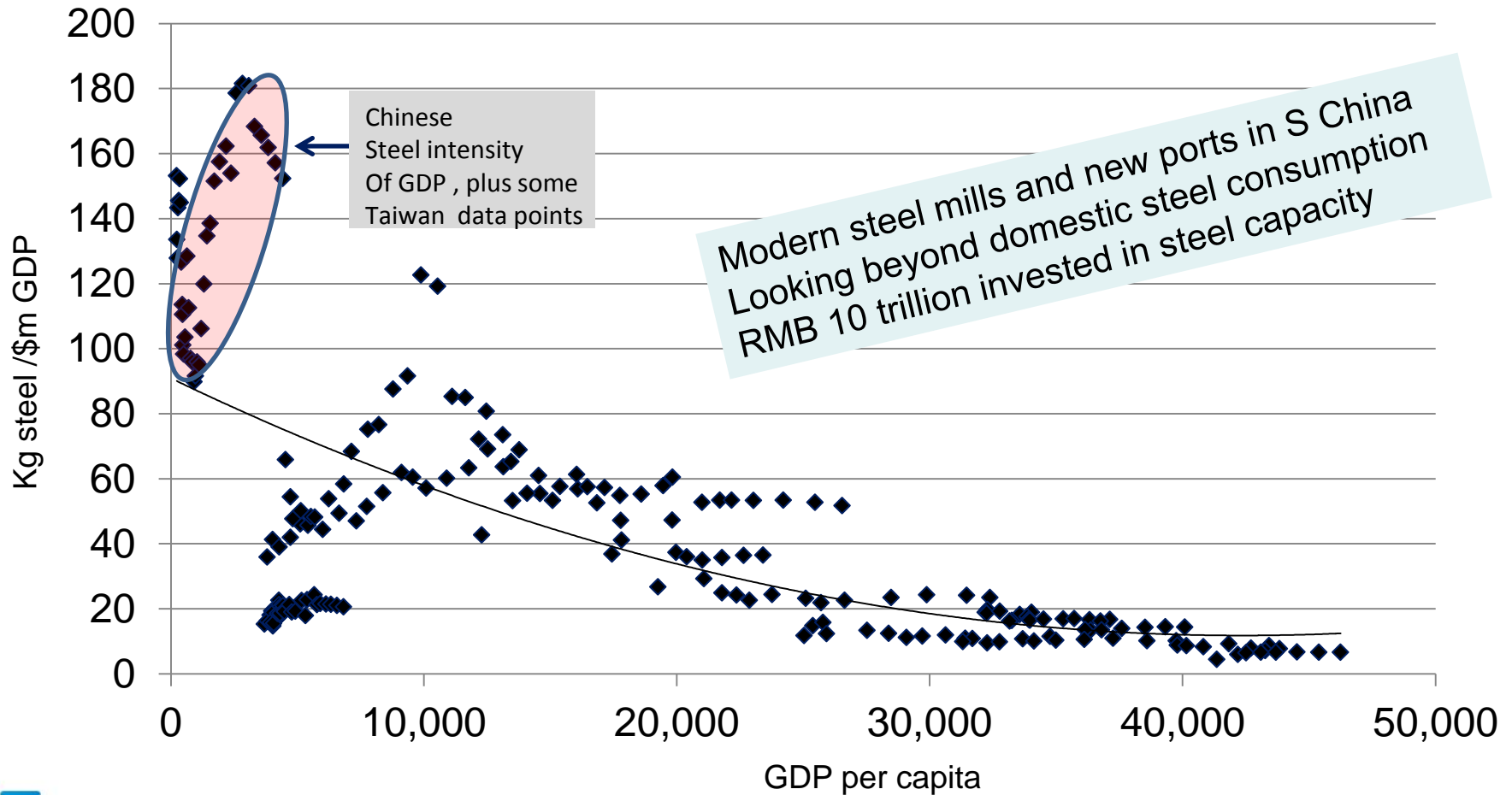
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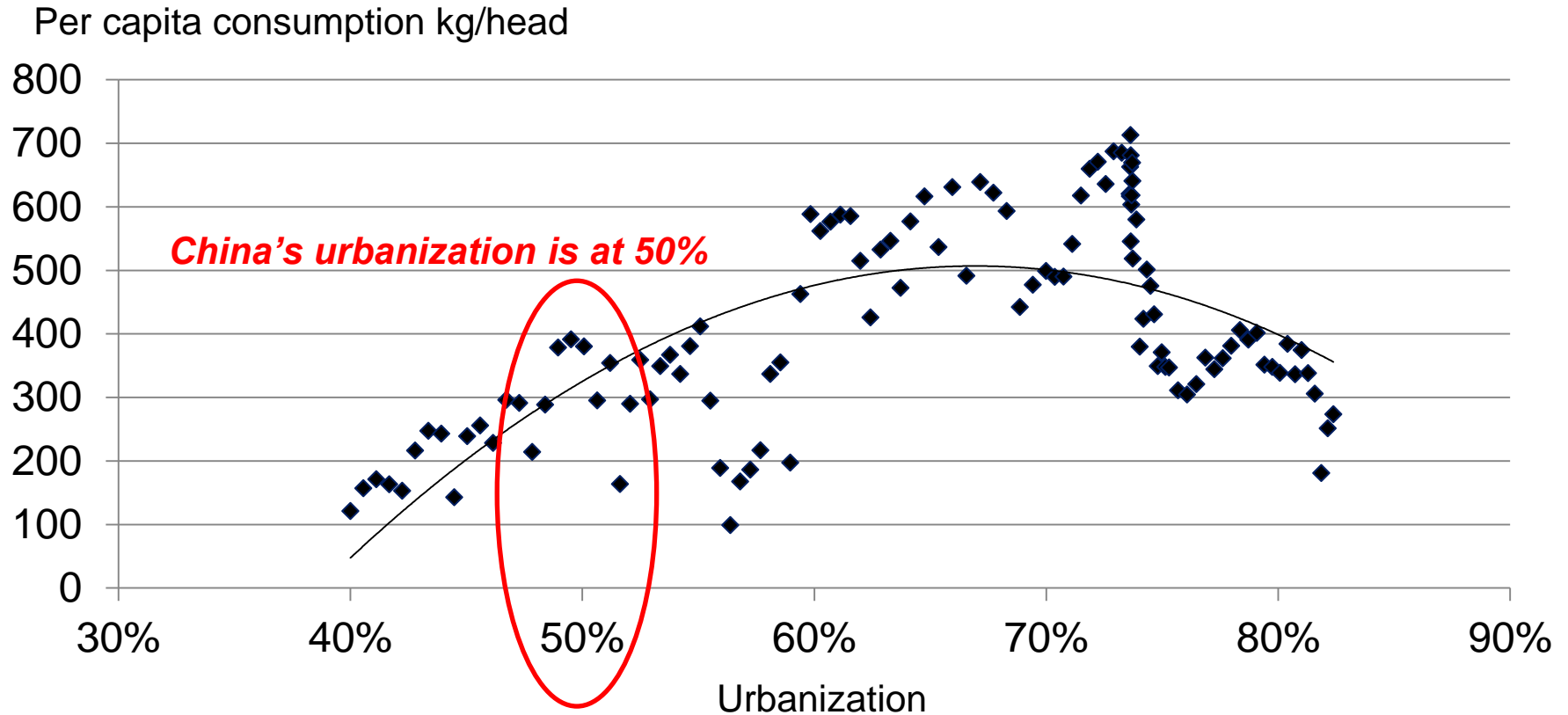
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# China's steel intensity has been superlative....

Steel intensity of GDP v per capita income (1980-2011 data)



# ...and US data suggests peak per capita consumption comes at 65-70% urbanization

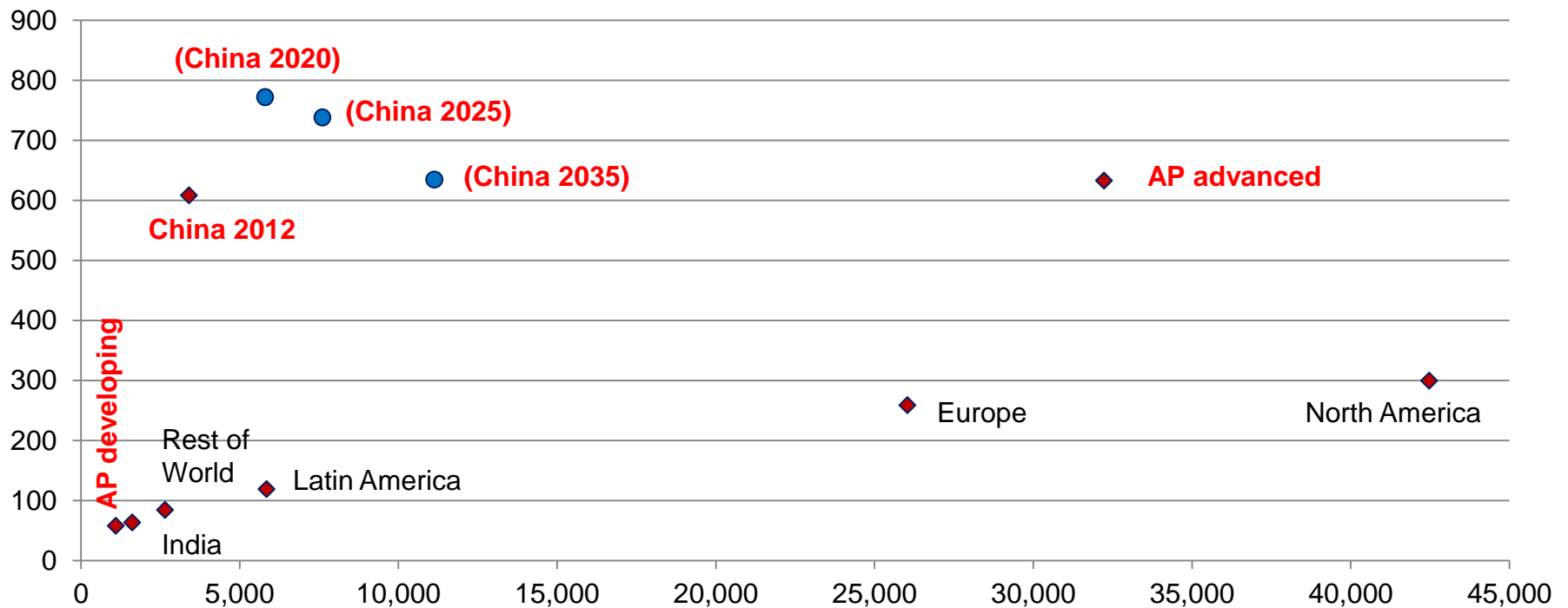




# So China's per capita peak is not expected until 2020, and consumption remains strong beyond that...

## The steel industry is not going away!!

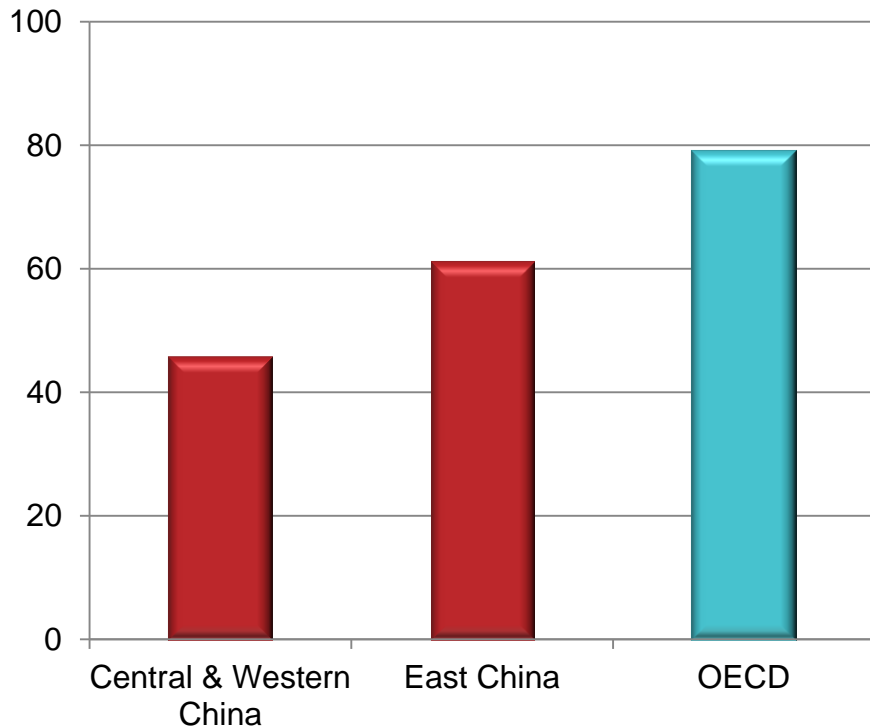
2012 consumption of finished steel per capita, kg



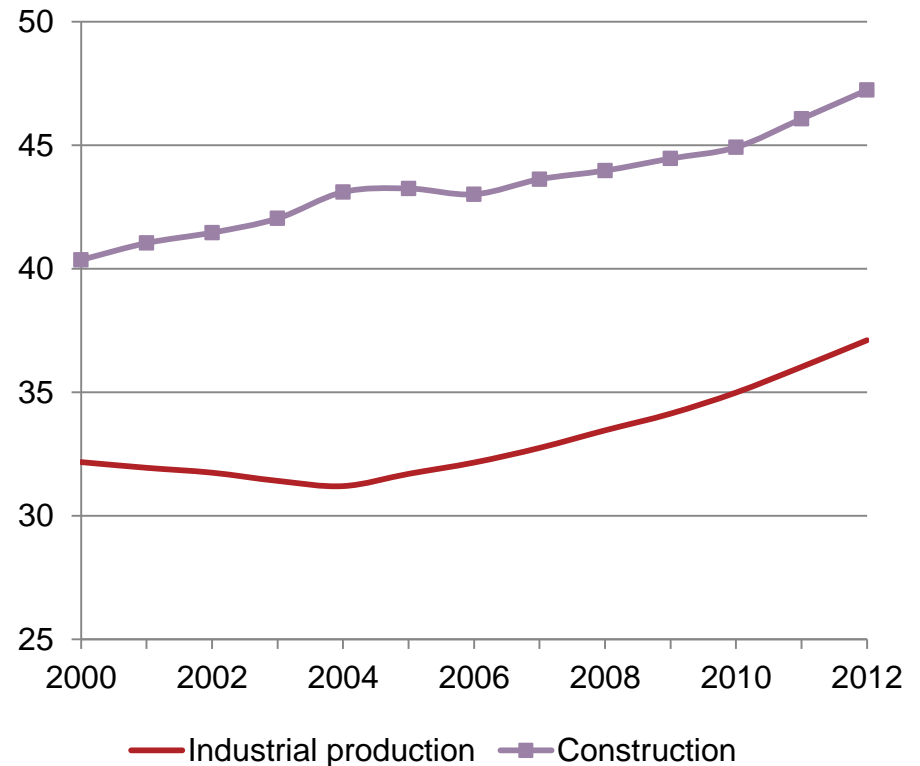
2012 GDP per capita, US\$<sup>(1)</sup>

# Although non-coastal China plays a part...

## Percent of population living in urban areas



## Central & Western China's share of national output, %



# ...urbanization continues in the populous east.



Guangdong government recently earmarked RMB 672 billion to develop the mountainous western, eastern and northern parts over next 5 years. Focus on railways and highways

Another example is Zhanjiang becoming a modern port city

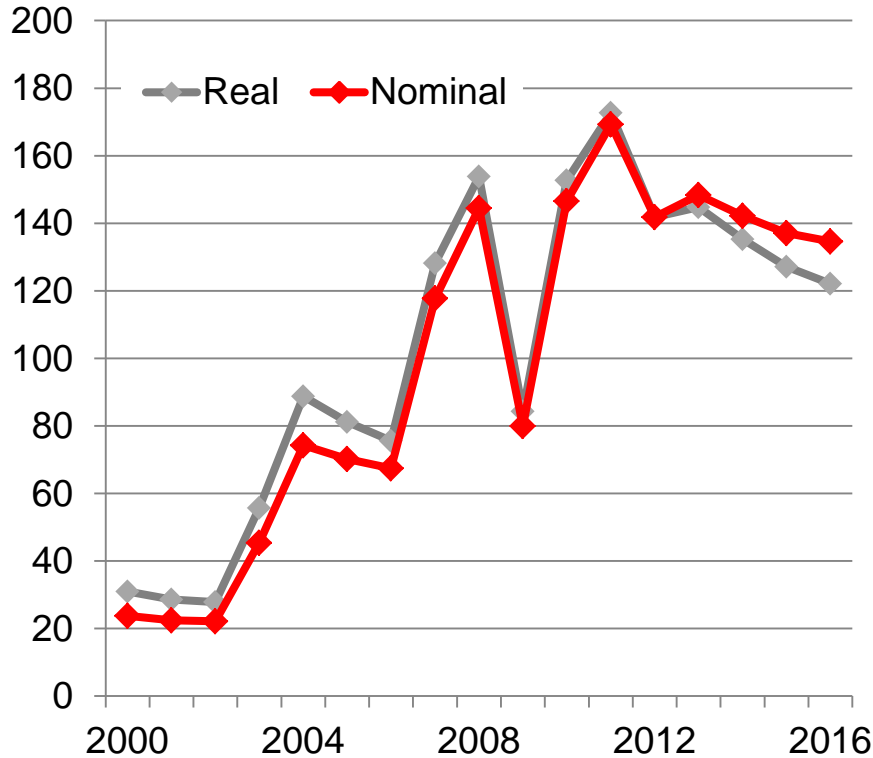
Plans to build prefecture cities of 1 million and “small towns” of around 500,000 to help urbanization in rural areas!

Arable land is at a premium, cities tend to expand up (more steel intensive).

Guangdong is already the leading province in GDP

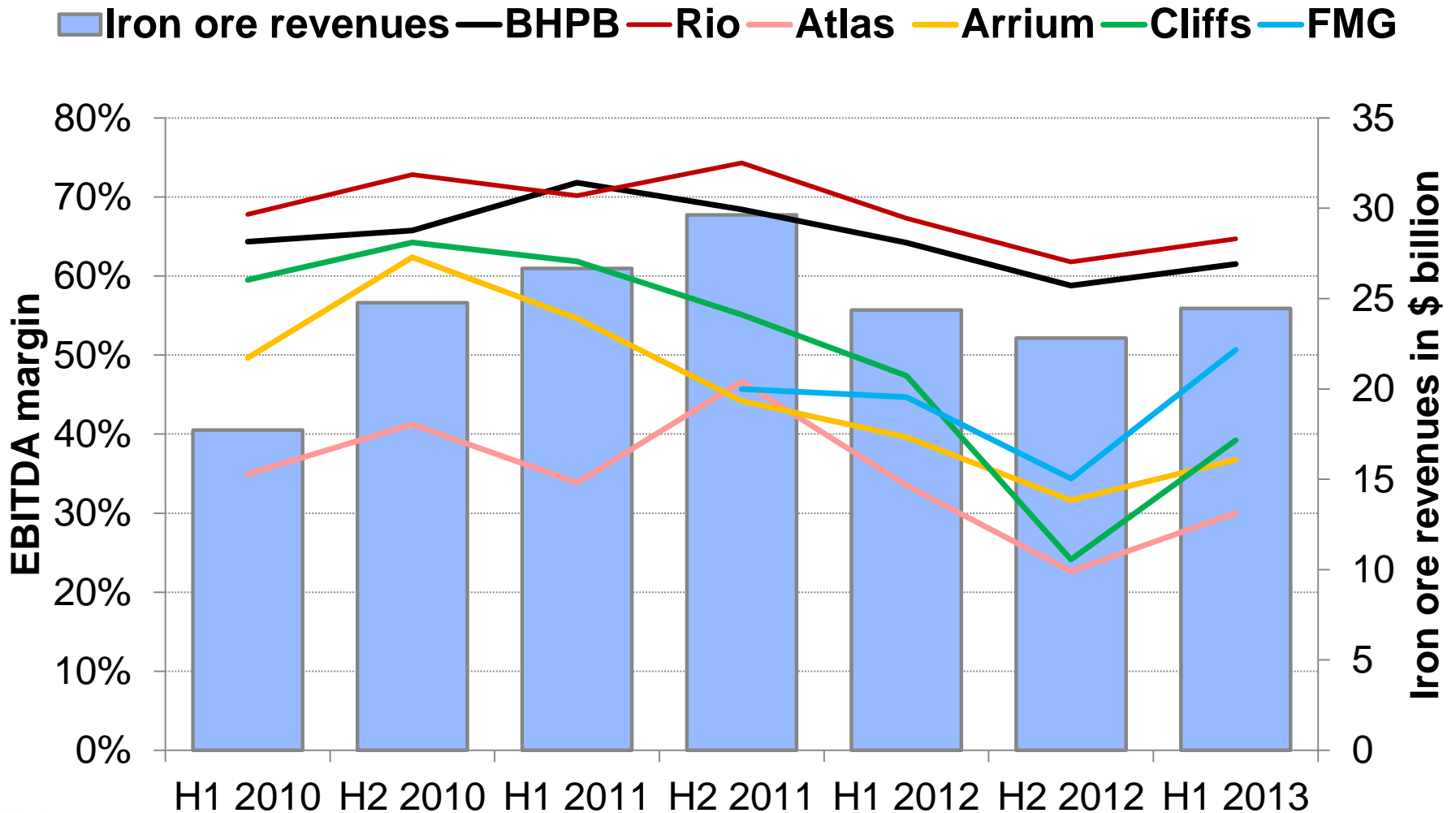
# It's a great business to be in \$20 to \$140/t in 10 years – what next?

Price for 62% Fe sinter fines, cfr China, US\$/tonne



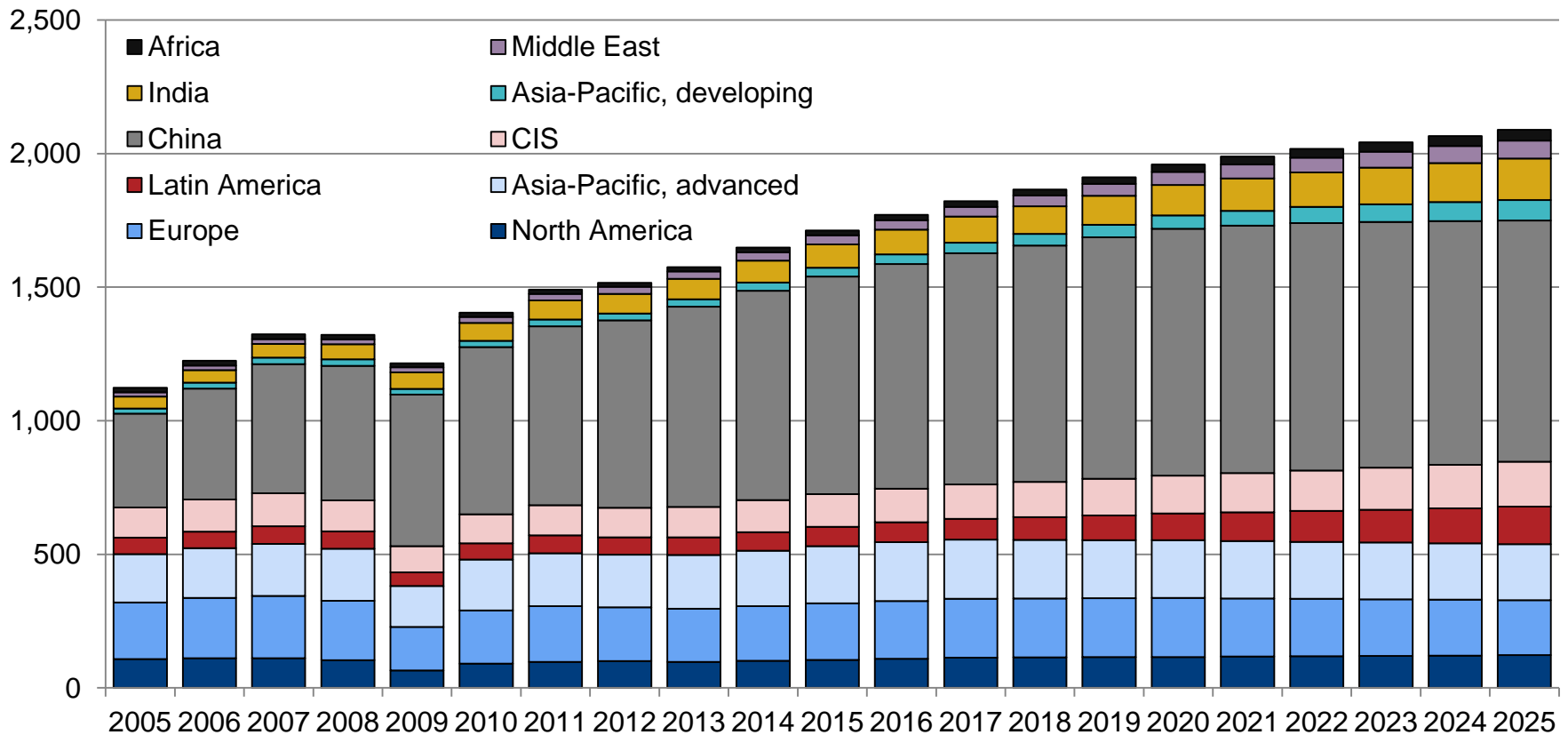
What are the projected needs  
for iron ore going forward?

# Established producers are still making excellent returns...

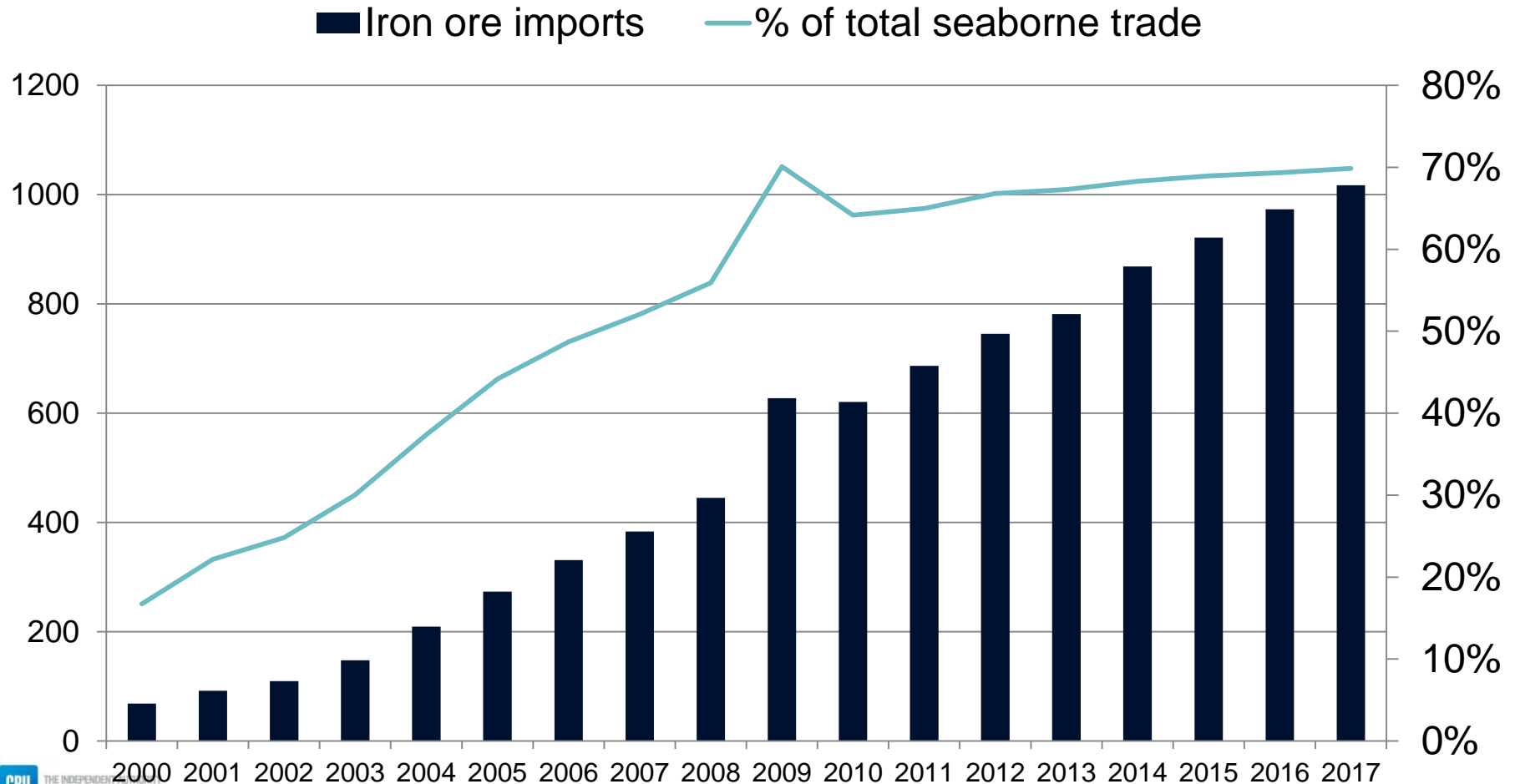


# Steel production shows steady growth, which becomes less China centric into the next decade..

Crude steel production, Mt



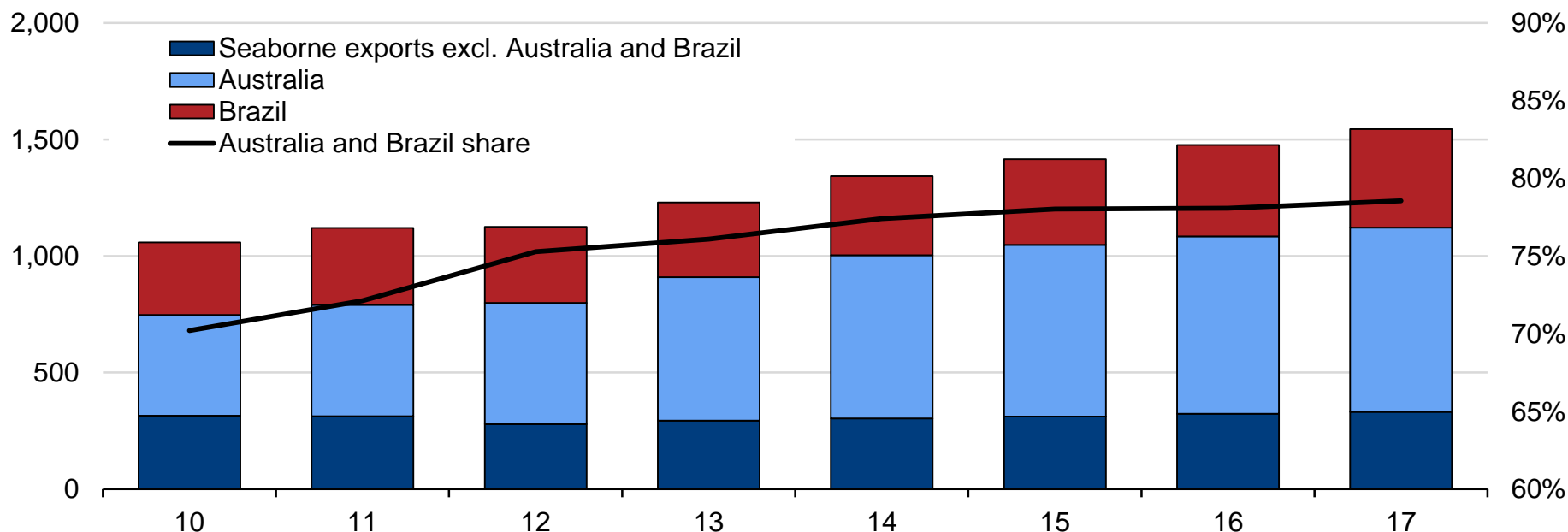
# Chinese iron ore imports will rise to 1bn tonnes by 2017 or two-thirds of all seaborne total trade...



# ...and given robust growth from the majors, Australia and Brazil's share of total seaborne exports is on the rise...

LHS: Seaborne exports of iron ore, Mt

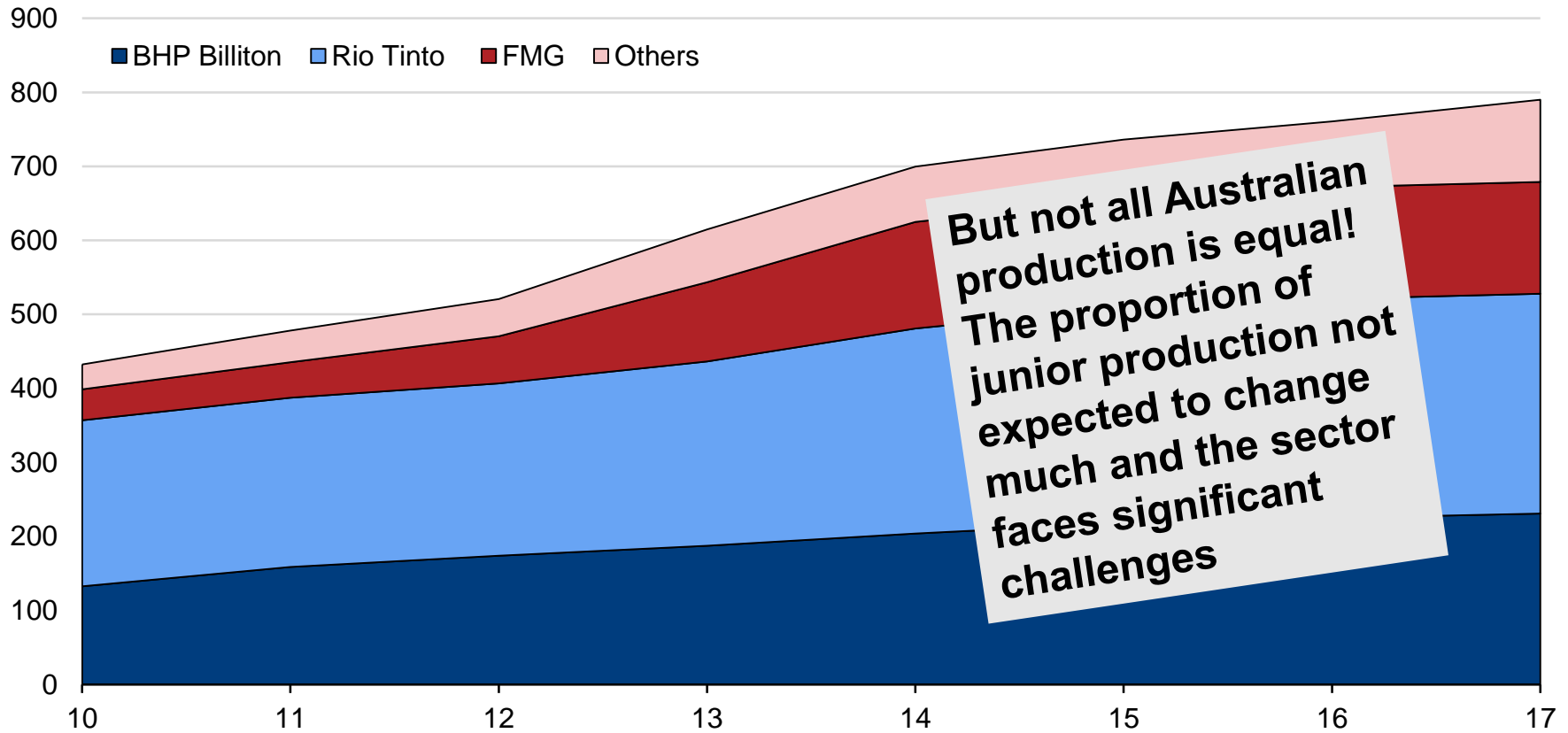
RHS: Australian and Brazilian share of global seaborne market, %





# ...with Australia leading the way.

Australian iron ore exports by company, Mt



Data: GTIS, CRU, company reports.

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# How do we compare different mining projects? Here are a few ideas

- **Project assessment**

What is the true level of development of a given project?

- **Product assessment**

Will a steel mill take it? What value will I receive for it?

- **Competitiveness**

How does this project compare to its peers? what is the impact of short-term market fluctuations?

# Project gateways: a project must progress in a number of different areas before it can reach production

	1	2	3	4	5
	Speculative	Possible	Probable	Committed	Operating
Geology					
Metallurgy/ technology					
Engineering					
Social and environmental					
Marketing/ commercial					
Transportation					
Ownership/ management					
Financial					

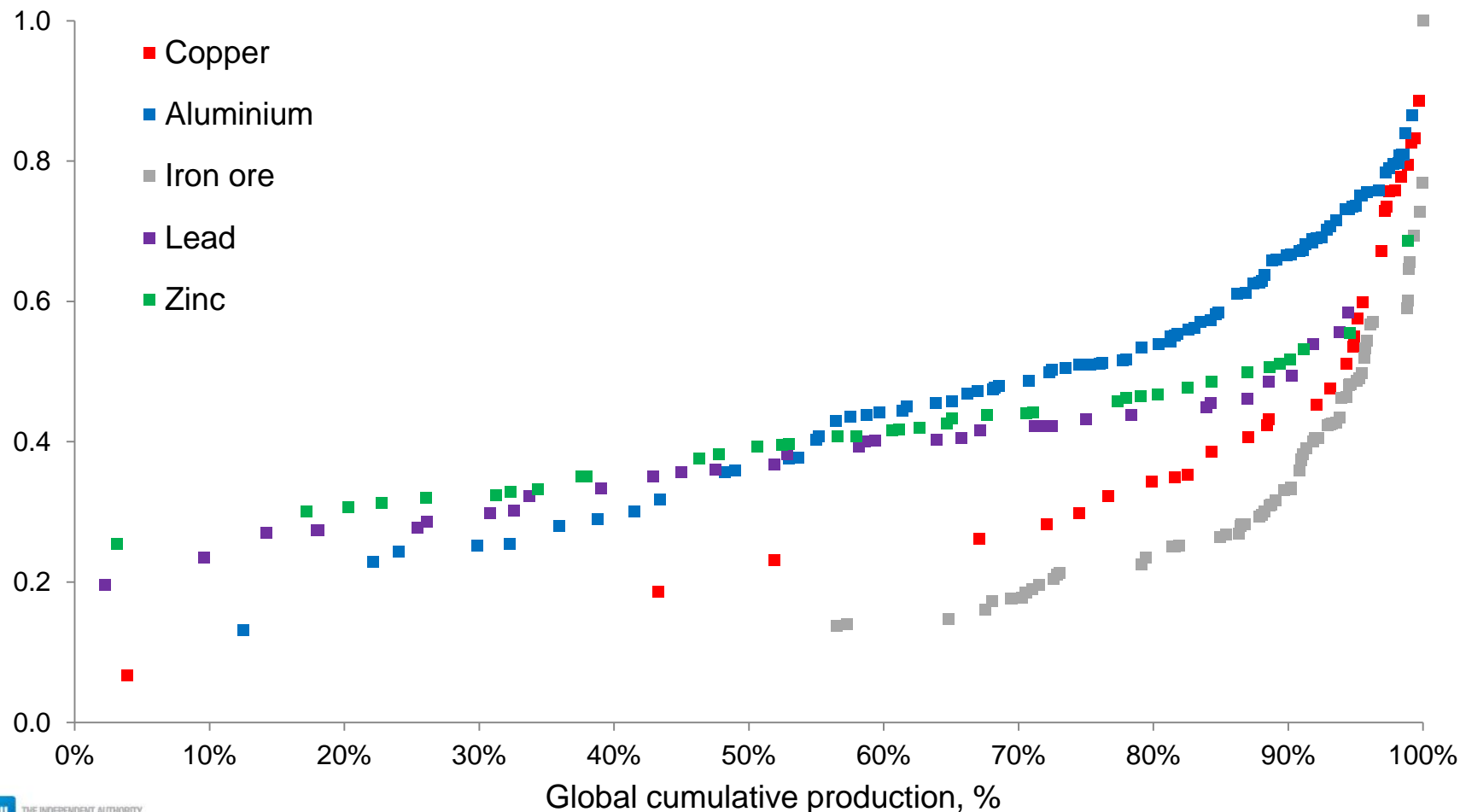
## Product assessment: Iron ore is not a homogenous commodity – it is important to understand the value of the final product

- Base price
- Iron adjustment and value-in-use
- Penalties
- Product form
- Energy
- Freight

**The importance of an off-take partner who works with you to develop an acceptable and consistent product cannot be under-stated**

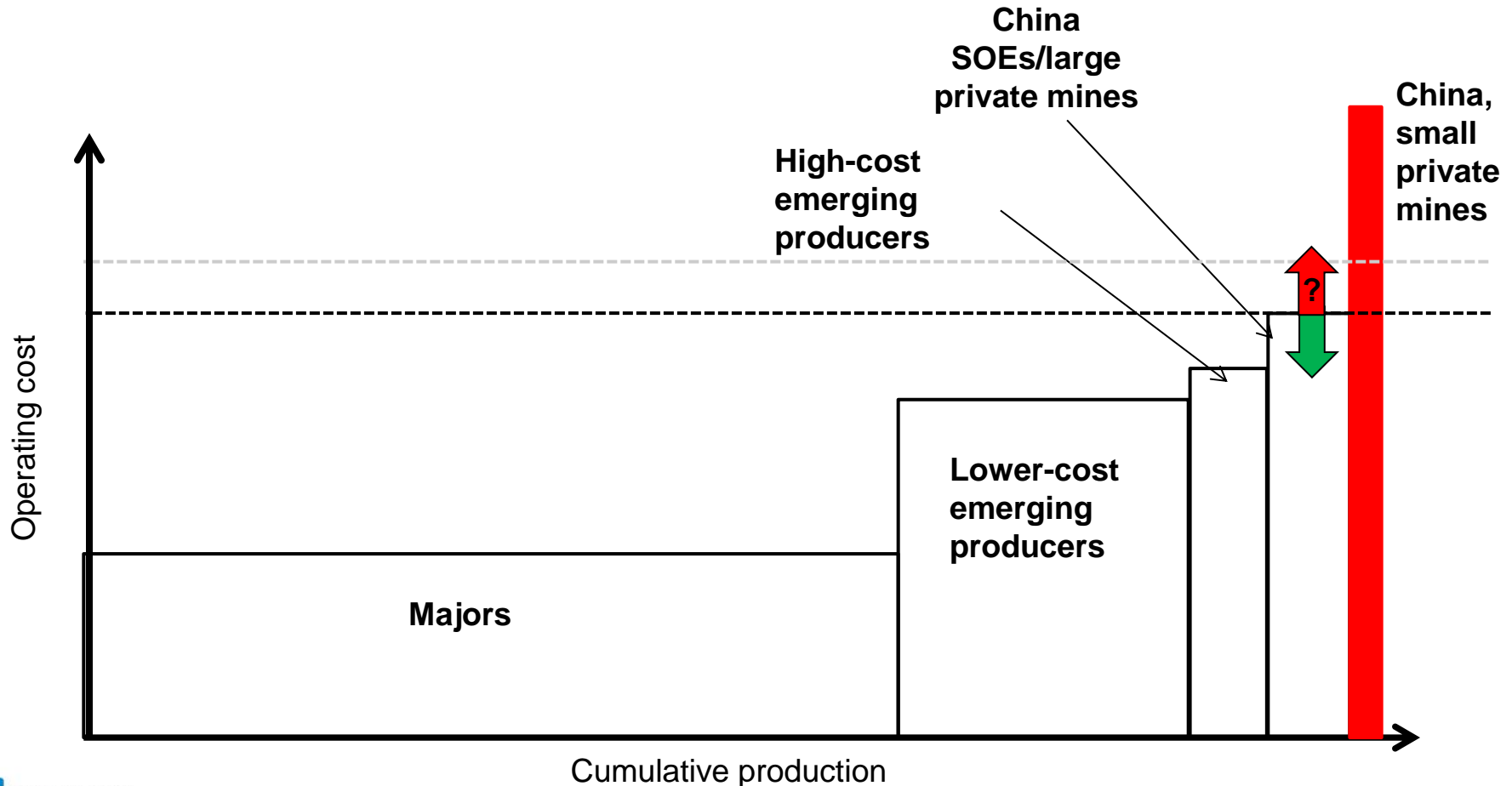
# It's wrong to say China is high cost in all commodities (but you can in iron ore!)

Chinese business costs, 2013, normalised (0=global minimum, 1=global maximum)

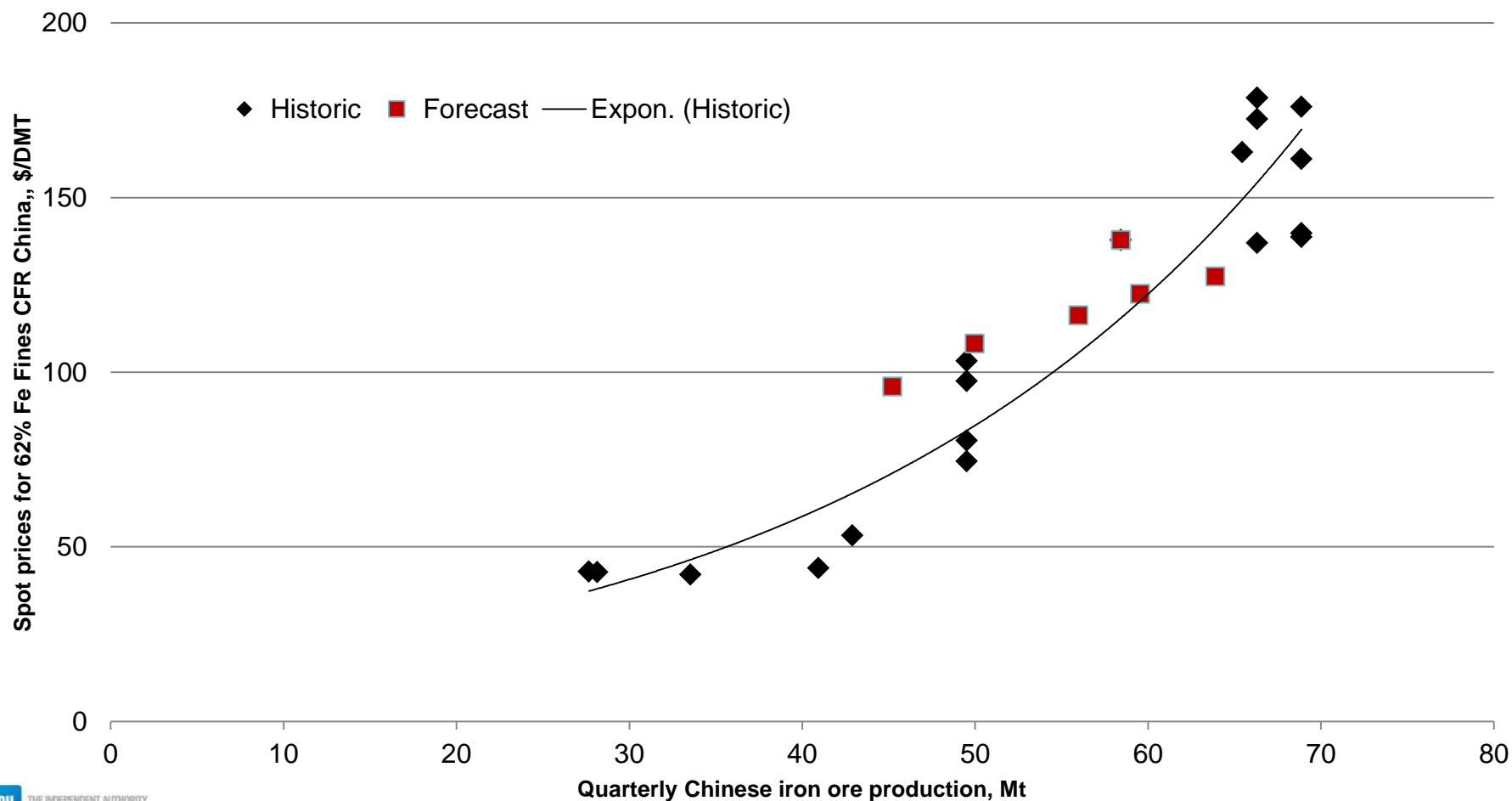


# Small, privately-owned Chinese mines occupy the tail of the global cost curve...

Representative global cost curve



# ...and thus Chinese domestic production is highly price responsive





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## Canada – land of opportunity?

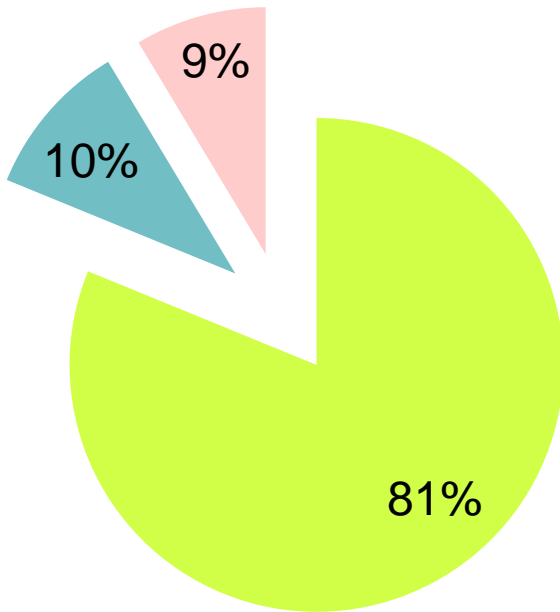
- Iron ore demand remains strong in absolute terms
- Scarcity is not a relevant word for iron ore resources
- The value of iron ore is in the logistics – always has been always will be!!
- So – where will supply come from?
  - Australia
  - Brazil
  - West Africa
  - Canada
- Things to consider: resources, infrastructure, politics, location, infrastructure .....oh, and infrastructure.....

# How does Canada compare?

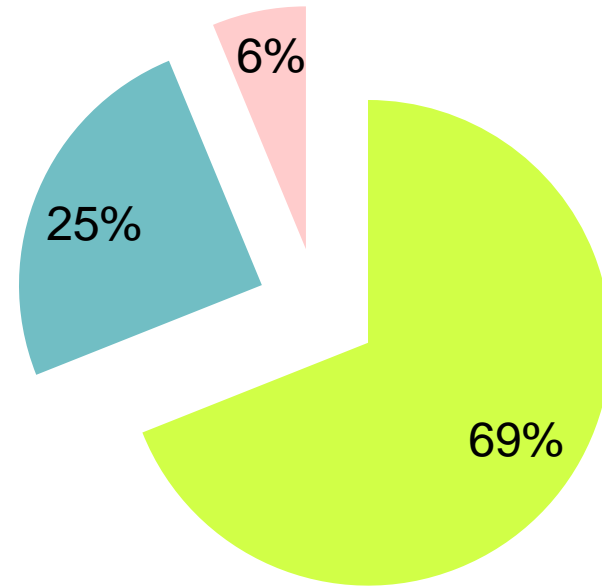
## West Africa vs Labrador Trough

Contained Fe (in resources/reserves) by project stage(%)

46 projects  
Labrador Trough – 29.6Bt



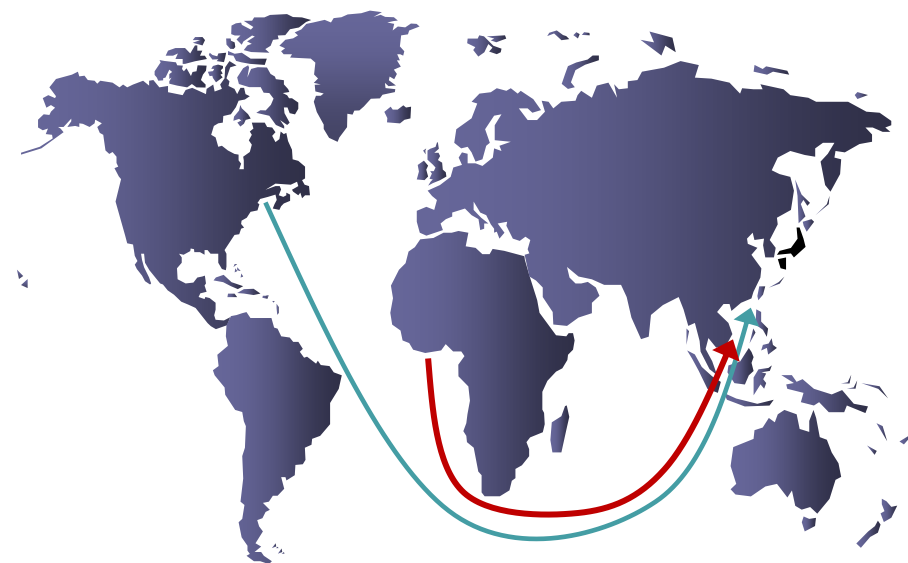
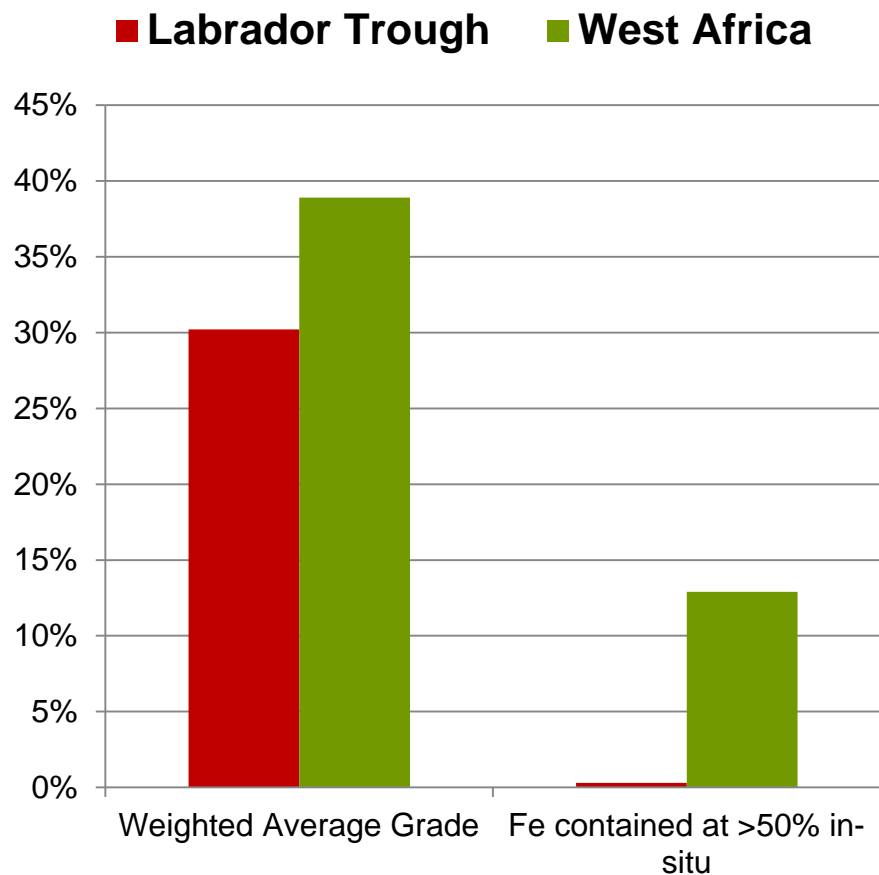
50 projects  
West Africa – 27.8 Bt



■ Exploration ■ Feasibility ■ Production

# W. Africa has better in-situ grades...

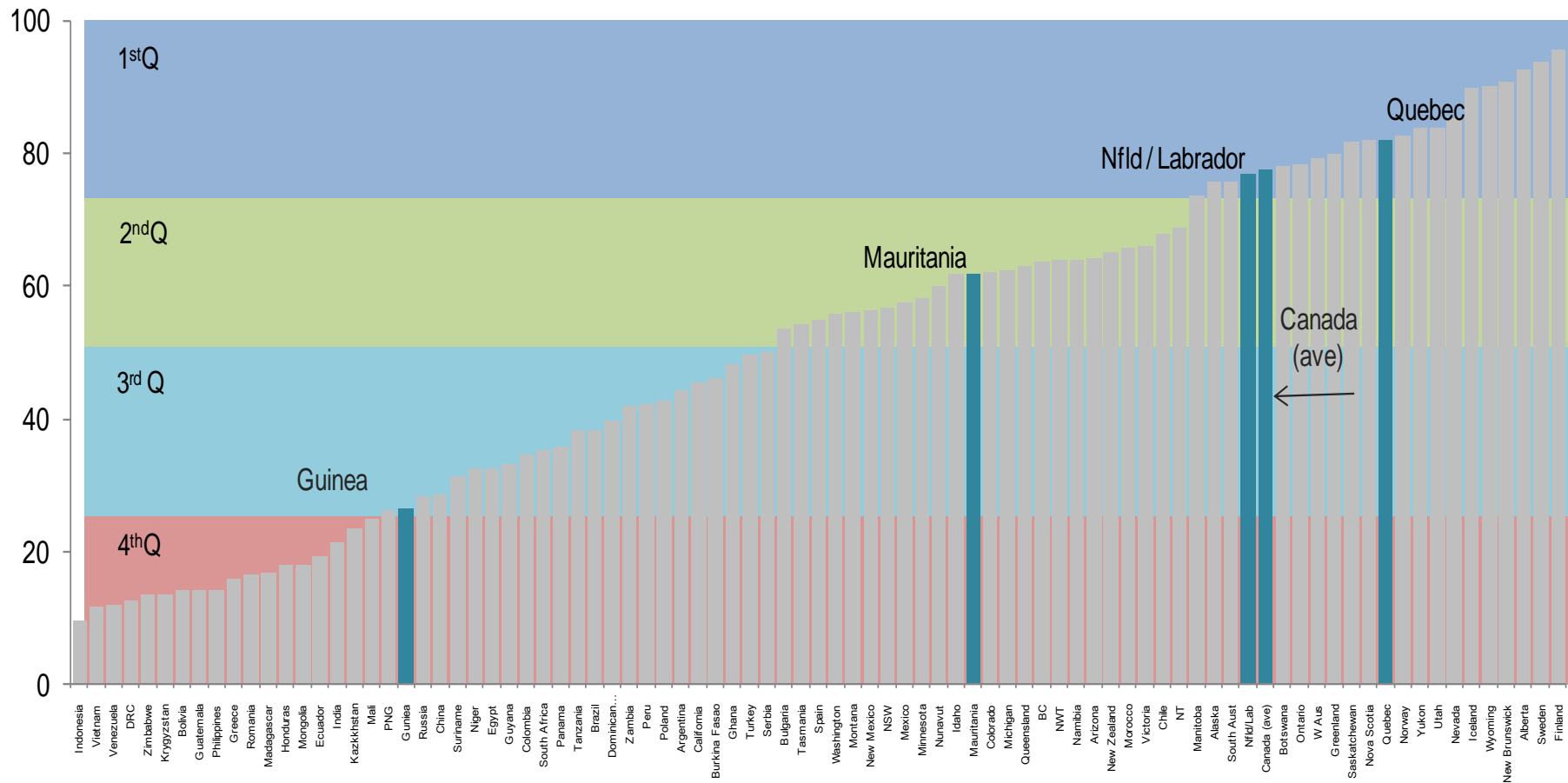
...and its closer to China...



Origin	Distance	Units	2012	2020
Canada	14,675	\$/wmt	24.6	37.4
West Africa	9,727	\$/wmt	18.9	28.8
Add trans-shipping to the West Africa total - \$6-8/wmt!				

# ... ..but politically Canada is a long way ahead

## Policy Potential Index (the “ability to do business” there)



# Labrador Trough projects benefit from multi-user infrastructure...



- Multi-user infrastructure
  - QNSL railway
  - Port of Sept Îles
- New wharf at Pointe-Noire through a mixture of public and private investment
  - 50-60mtpa
  - Completion by March 2014 - on schedule and budget
  - Cape-size vessels (up to 250,000dwt)
  - Phase 2 to 100mtpa



# And, for large investments, politics impacts all the decisions...



Multi-user

Cape-size shipping

Low cost power existing

Productive labour

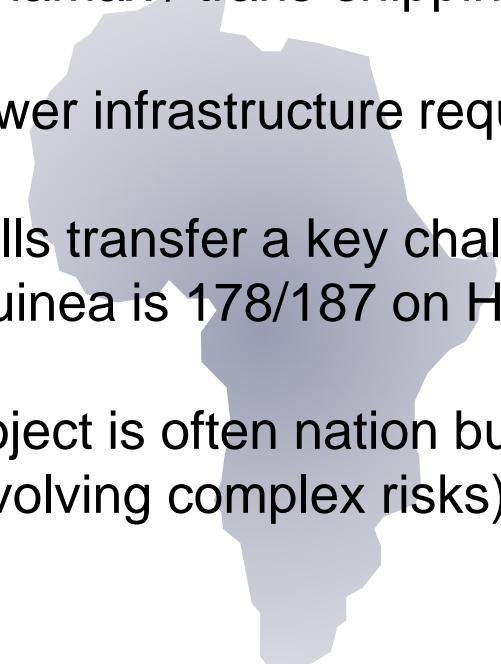
Multi-border

Panamax / trans-shipping

Power infrastructure required

Skills transfer a key challenge  
(Guinea is 178/187 on HDi)

Project is often nation building  
(involving complex risks)

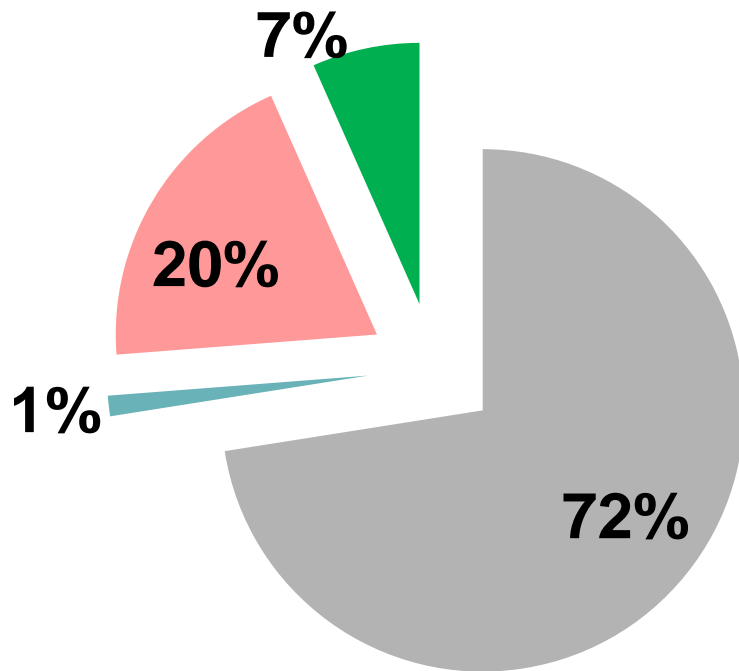




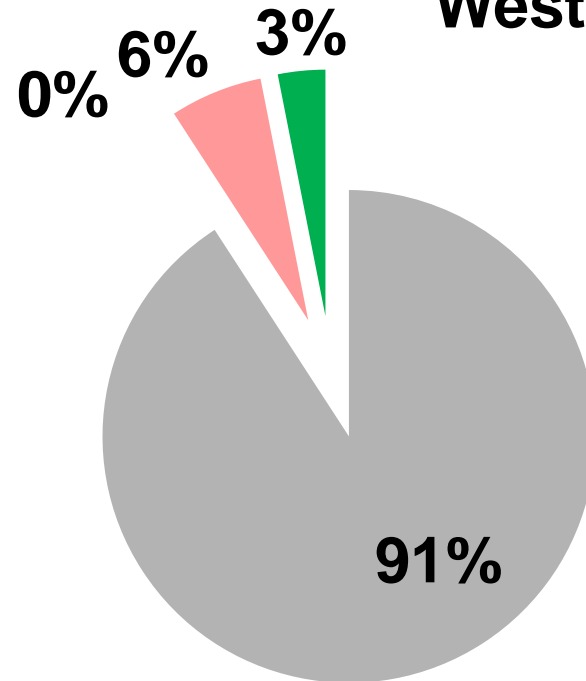
# ..and this is apparent when you look at foreign investment

Percentage of Fe contained that is owned or optioned by Japan/China/India

## Labrador Trough



## West Africa



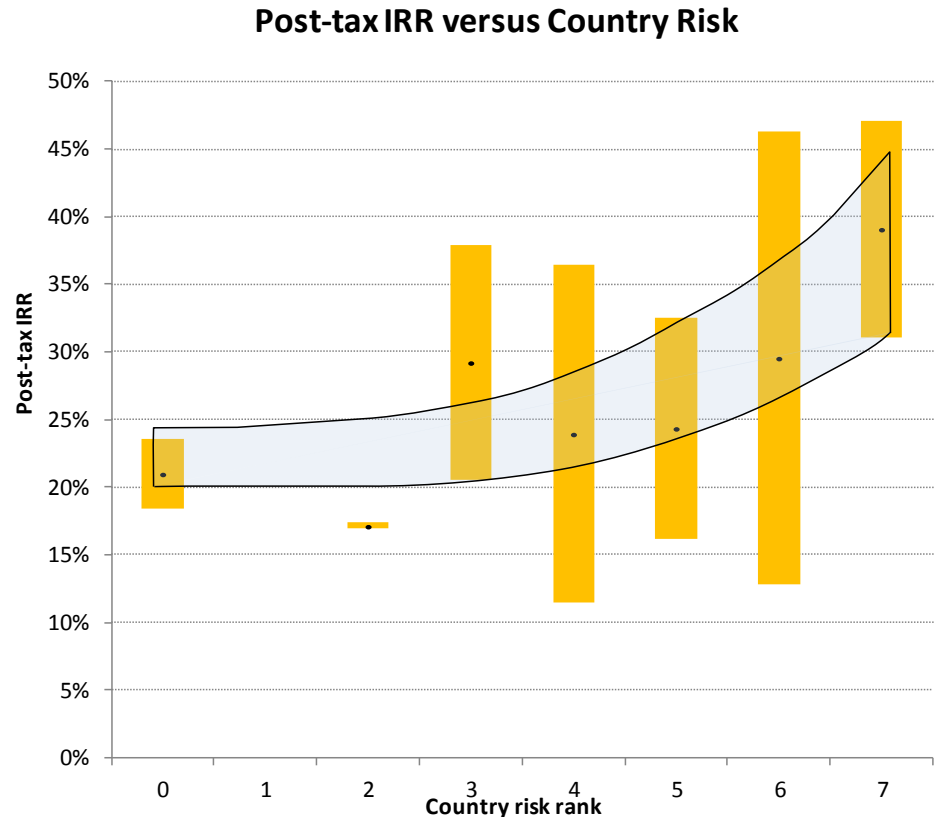
■ Other ■ Japan ■ China ■ India

# Here we look at new projects from the perspective of an investor!

- Simple discounted cash flow model and 54 projects
- CRU's assessment of **business costs**
- IRRs used by real companies to raise money
- Further assumptions
  - Production profile, expenditure profiles
  - 100% equity funding
  - Excludes government incentives – tax, public infrastructure builds etc.

# IRR offers on projects differ significantly by jurisdiction...

- 96 projects
- Reported IRRs
- Post-tax
- OECD risk classifications 0-7
- Statistically significant



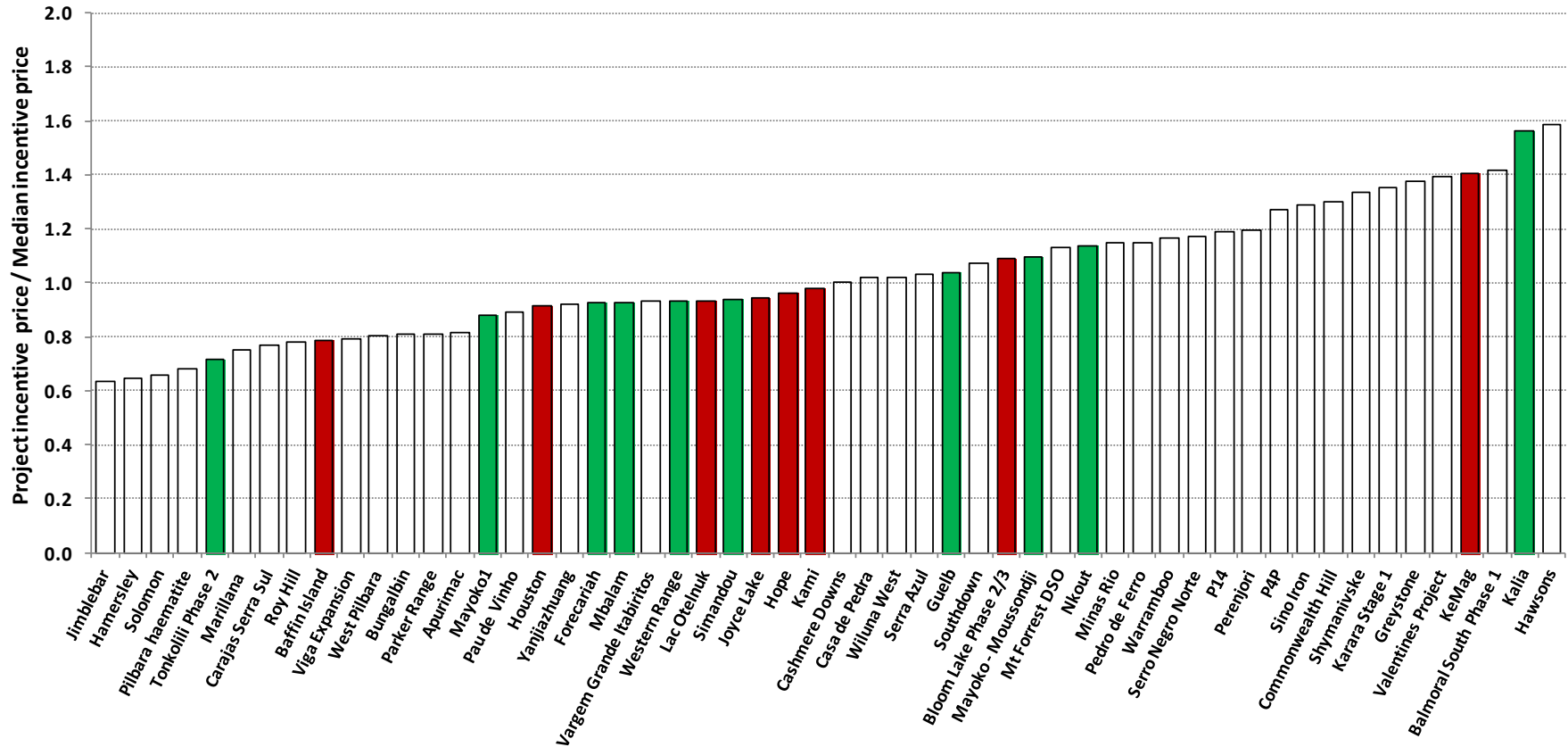
## ...projects in West Africa require 10% more return than their Canadian peers...

Rank	Country	Promotional IRRs Nominal	Promotional IRRs Real
0	Canada	18.0%	15.5%
6	Cameroon	26.0%	21.0%
7	Guinea, Liberia, Congo, Sierra Leone	31.0%	26.0%

# ...putting Canadian projects on a level playing field..

West African projects in green

Canadian projects in red



...tax benefits, public infrastructure and ability to finance through debt will make the difference...

26.0%

West Africa

10.7% + 8.0%

18.7%

Promotional IRR

Risks

- Political
- Capex
- Opex
- Price

Adjusted industry WACC

15.5%

Canada

10.2%

10.7% + -0.5%

# Conclusions

- China is important – their demand and their *strategic* goals
- Oligopolistic supply provides opportunities for others
- Global demand recovery has an upside (at last!)
  
- From an investors perspective – the risk-reward balance requires careful analysis.
- Iron ore is not about mining – it is about infrastructure and that favours the less risky environments...

# And just to remind you we offer a range of consultancy services and regular reports on the iron ore industry

February 2012

CRU

## CRU MONITOR Steelmaking raw materials

www.crugroup.com

**Modest price**  
Despite increasing supply  
**Coal prices**  
Demand remains subdued  
**Further erosion**  
A limited supply-side  
**Increasing**  
Expanding supply, cost  
**Raw materials**

Iron ore spot  
Iron ore spot, ex Australia  
Iron ore spot, ex Brazil (USP)  
Iron ore spot, ex Canada  
Iron ore spot, ex Australia  
Lump differential  
Iron ore contract  
Capacize freight, spot  
Iron ore contract (1)  
Iron ore contract  
Capacize freight, spot  
Iron ore contract (1)  
Hard coking coal spot  
Hard coking coal contract  
Merchant coke (2)  
Coke freight  
Merchant coke  
Scrap, #1 HMS  
Scrap, #1 HHS  
Scrap, #1 HMS  
Pig iron  
FBI  
Data: CRU  
Notes: (1) 2012 contract price is in a state of flux. Our evaluation from Russia, Japan, Colombia.

INSIGHT  
INTELLIGENCE  
INNOVATION  
...ONE OF A POWERFUL  
NEW GENERATION OF  
COST SERVICES  
FROM CRU

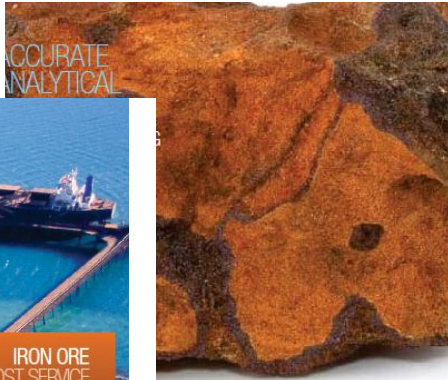
ENHANCED  
FOR  
2012

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THE WAY AHEAD  
FOR DECISION  
SUPPORT

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ACCURATE  
ANALYTICAL  
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...FROM CRU'S LEADING  
RANGE OF STEEL RAW  
MATERIAL FORECASTS

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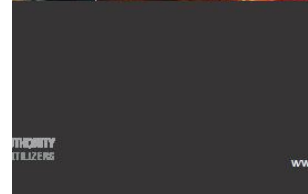
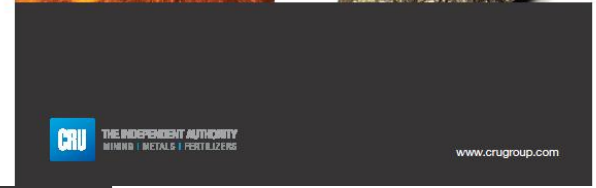
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